GILL TREMLETT

EXPANDED PROGRAMME ON IMMUNIZATION

TRAINING COURSE ON PLANNING AND MANAGEMENT

Course Facilitator Guide

WORLD HEALTH ORGANIZATION

9290

Community Health Cell
Library and Information Centre
367, "Srinivasa Nilaya"
Jakkasandra 1st Main,
1st Block, Koramangala,
BANGALORE - 560 034.
Phone : 553 15 18 / 552 53 72

EXPANDED PROGRAMME ON IMMUNIZATION

TRAINING COURSE ON PLANNING AND MANAGEMENT

COURSE FACILITATOR GUIDE

HHS,PHS,CDC

COURSE FACILITATOR GUIDE

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INTRODUCTION TO COURSE FACILITATOR GUIDE

How does this course differ from traditional training courses?

- Each participant at the course is provided with a set of booklets called modules that serve as the primary subject matter resource. Additional resources are available in the form of a bibliography of articles and technical experts.
- The materials are designed to assist each participant to develop specific skills. These skills are developed by asking each participant to apply new knowledge to exercises provided in the modules and to situations presented in group discussions.
- Each participant is encouraged to work at his* own pace within the time limits of the course.
- Each participant is encouraged to discuss any problems or questions with a Course Facilitator whenever these occur and to receive prompt feedback from a Course Facilitator on completed exercises (that is, to be told how well he has done the exercise and what improvements could be made).

What is a Course Facilitator?

As the name implies, a Course Facilitator is one who assists the participants in a training course to learn the skills presented in the course materials, usually through individual discussions and counseling. He is one of several sources of instruction; other sources include the modules, reference materials, technical experts, and other participants in the course. Skills, knowledge, or experiences in the subject being taught enable a Course Facilitator to better explain ideas, lead discussions, and help participants learn the skills. However, because modules are the primary subject matter resource for the course, a Course Facilitator is not expected to teach the content of the course through formal lectures or other traditional teaching methods.

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*For convenience and simplicity, the masculine pronouns (he, his) are used throughout these materials to refer to participants, course facilitators, and EPI managers. It is recognized that these individuals may in many cases be female; the use of the masculine pronoun is not intended to exclude such females in any way.

What, then, does the Course Facilitator do?

The Course Facilitator performs three basic functions:

He instructs

- by ensuring that each participant understands what is expected of him in terms of the skill to be practiced and the way in which he is to work through the materials,
- by answering the participant's questions as they occur,
- by clarifying any information that the participant finds confusing as he works through the materials and by helping him to understand the main purpose of the exercise,
- by promptly evaluating each participant's work and providing correct answers,
- by identifying weaknesses in the participant's skills or understanding and providing explanation or practice to correct them,
- by helping the participant to understand the application of theoretical concepts to practical problems, for example, to real-life situations in his own country.

He motivates

- by reinforcing good performance by complimenting the participant on his correct answers, improvements, or progress,
- by ensuring that there are not major obstacles to training, such as excessive noise or inadequate lighting.

He manages

- by ensuring that each participant has access to the right materials and resources at the right time,
- by monitoring the progress of each participant.

In what manner does the Course Facilitator carry out these functions?

- He demonstrates enthusiasm for the topics covered in the course and for the work that the participants are doing.

  Specifically, the Course Facilitator might emphasize the value of the skills that the participants are learning for successful management of an EPI

programme, and share new ideas that he himself learned while working through the materials.

- He is receptive to each participant's questions and needs.

The Course Facilitator should encourage the participants to come to him at any time with questions or comments. He should always be available during specified class periods and should avoid working on other projects or carrying on discussions not related to the course. He should learn each participant's name and should promote a friendly, cooperative relationship. The Course Facilitator should respond positively to questions (by saying, for instance, "Yes, I see what you mean," or "That's a good question."). He should also refrain from using facial expressions or making comments that could cause participants to feel ridiculed. The Course Facilitator should take enough time with each participant to answer his questions thoroughly (that is, to their mutual satisfaction). Finally, he should not always wait for a participant to ask for help. He should watch the participants as they work and offer individual help if he sees a participant looking puzzled, staring vacantly into space, not writing answers or not turning pages.

- He serves as a role model for the participants, especially those who will later be responsible for training their colleagues.

By demonstrating all of the behaviour outlined above, the Course Facilitator is showing the participants how they should act when training others. He should keep in mind that if he is helpful and innovative in finding explanations for difficult concepts, the participants are more likely to treat their future students the same way. Participants should remember the Course Facilitator as a person who was genuinely interested in them and who wanted to help them learn.

How can the Course Facilitator Guide help?

In addition to providing information on the role of a Course Facilitator, the Course Facilitator Guide provides guidelines specific to each module including:

- a list of the basic steps to be performed by participants and Facilitators to complete the module, with references to other helpful pages in the guide,
- "Detailed Guidelines" which describe specific actions a Facilitator should take, points he should cover in discussion, etc.,

- a blank space for each Facilitator to note points to make in addition to those listed in the "Detailed Guidelines,"
- answer sheets (or possible answers) for each exercise.

At the back of the Course Facilitator Guide, there are three pages of "Guidelines for All Modules" which describe important techniques to use at these times:

- While Participants are Working,
- When Providing Individual Feedback,
- When Leading a Group Discussion.

These pages of general guidelines are designed to fold out so that Facilitators can easily refer to them at any time, along with the specific guidelines for a given module.

To prepare to help a group of participants in their work on a module, a Facilitator should:

- read the module and work the exercises,
- read in the Course Facilitator Guide all the material provided relevant to the module,
- plan precisely how work on the module will proceed and what major points should be made,
- anticipate sections that participants will find difficult and questions that they are likely to ask,
- plan ways to help with difficult sections and answer probable questions,
- think about the skills taught in the module and how they can be applied in various countries,
- plan questions to ask participants so that they will also think about how the skills can be applied in their countries.

CHECKLIST OF INSTRUCTIONAL MATERIALS

Senior-Level Course Materials

- Introduction to Training Course on Planning and Management
- Modules
  - National Priorities
  - Disease Estimates: Introduction
    - Disease Estimates: Measles
    - Disease Estimates: Tetanus
    - Disease Estimates: Poliomyelitis
  - Regional Priorities
  - Programme Targets
  - Programme Design
  - Surveillance
- Answer Sheets
- Supplement to Supervise Performance for Senior-Level Managers

Mid-Level Course Materials

- Modules
  - Allocate Resources
  - Manage the Cold Chain System
  - Conduct Vaccination Sessions
  - Evaluate Vacccination Coverage
  - Supervise Performance
  - Provide Training
  - Conduct Disease Surveillance
  - Ensure Public Participation
- Answer Sheets

INSTRUCTIONAL MATERIALS NEEDED FOR EACH GROUP

Item	Quantity
Course Facilitator Guide	1 for each Course Facilitator
Course Manager Guidelines for Mid-Level Modules	
Booklet titled Introduction	1 for each Course Facilitator 1 for each participant Extras for visitors
Set of 6 senior-level modules	
Supplement to Supervise Performance for Senior-Level Managers	
Set of 8 mid-level modules	
Answer Sheets for mid-level modules	
Set of Answer Sheets for senior-level modules	1 for each participant Extras for visitors
Course Bibliography	

CHECKLIST FOR MISCELLANEOUS SUPPLIES

Supplies needed for <u>each person</u> include:

- WHO manual
- calculator (battery operated)
- name tag, name plate
- manila envelope
- pad of paper
- pencils
- eraser
- felt tip pen

Supplies needed for <u>each group</u> include:

- 1 box paper clips
- 1 desk type or hand-held stapler
- staples
- 1 staple remover
- 1 table clamp pencil sharpener
- 1 pair of scissors
- 1 roll scotch tape in hand-held holder
- 2 rulers
- rubberbands
- chalk and blackboard or magic markers and flipchart

Supplies the Course Director should have available include:

- filament tape
- masking tape
- extra batteries for calculators
- name tags for visitors

SPACE REQUIREMENTS

- Large room sufficient to seat all participants and visitors
- Smaller room for each group of 6-10 participants. Each smaller room should have:
  - sufficient table/desk area for 6-10 participants
  - blackboard or poster stand with paper
  - adequate lighting and ventilation
  - good acoustics
  - additional table area for resource materials, if any.

COURSE FACILITATOR GUIDELINES
FOR
INTRODUCTION

Procedure	Relevant Pages in CF Guide	
	Detailed Guidelines	Answer Sheets
1. Introduce yourself and ask participants to introduce themselves.	11	
2. Distribute calculators. Perform any other necessary administrative tasks.		
3. Introduce and distribute the booklet.	11	
4. Participants read through page 4.		
5. Show and explain the course materials.	11-12	
6. Explain your role as CF.	12	
7. Discuss Fictitia.	12	
8. Point out the glossary and tell participants to refer to it as necessary.		
9. Summarize major points in the booklet.	12-13	
10. Participants read pages 6 through 8 in Fictitia.		

DETAILED GUIDELINES FOR

INTRODUCTION

1. INTRODUCTION OF PARTICIPANTS

Introduce yourself as a Course Facilitator and write the name you want participants to call you in large letters on a blackboard or flipchart. As the participants introduce themselves, write the name each wishes to be called on the list. They may also wish to specify the country they work in or other identifying information. Leave the list in a visible place throughout the course to help you and the participants learn each other's names.

3. INTRODUCTION OF BOOKLET

Explain that this booklet describes

- how this course is different from traditional training (lecture) courses,
- what a course facilitator is,
- what course materials will be used, and
- how the course will proceed.

Ask participants to read through page 4.

5. EXPLANATION OF COURSE MATERIALS

Hold up the senior-level course materials for participants to see and briefly explain each item:

Item	Comment
Modules	• Come in a sequence. • Contain exercises - Participants will write in answers. • Will be theirs to keep.
Course schedule	• Includes definite times for plenary sessions. • Allows rest of schedule to be flexible so group can work at its own pace.
Answer sheets	• Provide definite answers whenever possible. • Provide "Possible Answers" to exercises which require judgment and may be answered many different ways. • Will be given to participants when exercise is discussed with CF.
Course Bibliography	• Provides additional information.

Explain that in addition to senior-level course materials, participants will work through mid-level modules or parts of mid-level modules which the Course Director determines to be appropriate for their needs. They will be able to keep all of the mid-level modules, even those they do not work through at the course, to complete at a later time.

Hold up the mid-level materials for participants to see. Explain that the mid-level modules will be described in more detail later in the course when participants have finished their work on the senior-level materials.

6. EXPLANATION OF THE ROLE OF COURSE FACILITATOR

- To answer participants' questions whenever they arise, or find the appropriate answer.
- To discuss and clarify, for any participant, information which he finds confusing.
- After most exercises, to give individual feedback.
- To lead group discussions of some exercises.
- To discuss how the skills learned in the modules can be applied in participants' own countries.

7. EXPLANATION OF FICTITIA

Explain that in the exercises in the modules, each participant will be making plans and decisions for Fictitia's EPI programme. Fictitia will be different from their country. Data may be imperfect, and some items may not seem realistic. But participants should not become preoccupied with Fictitia. It is just a tool to use in this course to learn management skills.

Participants should not read the whole section on Fictitia in the Introduction now. The Course Facilitator and instructions in each module will tell which sections to read for the exercises in that module. Participants will need to be very careful when reading the description of Fictitia and later when referring to it to locate data needed to work exercises. Thi will not be easy, but neither is finding and using data in their own country

9. SUMMARY

Review the following points and any additional points which you may have listed in the box on the next page.

This course was designed to help participants learn the most possible in this period of time, to maintain interest, and to ensure active involvement.

To gain the most from the course, participants should:

- Work the exercises by themselves. They will be given enough time to work the exercises carefully. The CF's recognize that people work at different speeds as a result of their varying fluency in the language, math and study skills, and familiarity with the subject.
- Ask the CF's to answer questions. It is the CF's job to help participants learn, but the participants must let the CF's know what help is needed.
- Participate in the group discussions, and listen carefully to others in the group.
- Think about the applicability of the skills being taught to their own countries and work. Discuss this with the CF's and the group.

10. Ask participants to read pages 6 - 8 of Fictitia.

ADDITIONAL POINTS TO BE CONVEYED TO PARTICIPANTS ABOUT INTRODUCTION ARE:

COURSE FACILITATOR GUIDELINES

FOR

NATIONAL PRIORITIES

Procedure	Relevant Pages in CF Guide	
	Detailed Guidelines	Answer Sheets
1. Distribute the module.		
2. Introduce the module.	17	
3. Explain how work on the module will be done.	17	
4. Participants read through page 4 of module and read description of Fictitia pages 9-15. They complete Section 1.0 of the Exercise (Worksheet A). Provide individual feedback on Section 1.0.	17, 137, 139	22
5. Participants read to end of module and read description of Fictitia page 16. They complete Sections 2.0 and 3.0 (Worksheets B and C). Lead group discussions on Sections 2.0 and 3.0.	17-19, 141	23-26
6. Summarize major points of module.	19	

2. INTRODUCTION OF MODULE

Explain that one of the first things a country may want to do when planning the delivery of primary health care is to select priority health problems. This ensures that efforts will be focused on selected primary health care interventions which promise to have the highest impact on reducing morbidity and mortality. This module presents a procedure which could be used to select the priority health problems for a country.

3. EXPLANATION OF MODULE

Explain how work on National Priorities will be done:

- Participants will read until they come to the Exercise. This exercise, and all other exercises in the course, will be signaled by a picture of a pencil. They will work through Section 1.0 (pages 2-4) of the Exercise until they are instructed to report to a Course Facilitator.
- After completing Section 1.0 of the Exercise (Worksheet A), participants will report to the Course Facilitator to discuss their answers and receive an Answer Sheet.
- When all participants have completed both Sections 2.0 and 3.0 of the Exercise (Worksheets B and C), there will be a group discussion.

4. SECTION 1.0 (WORKSHEET A) - INDIVIDUAL FEEDBACK

After discussing the participant's answers for Worksheet A, give him the Answer Sheet. Explain that the "Overall Importance" of each health problem was selected by averaging the assessments for "Incidence," "Mortality" and "Disability."

5. SECTIONS 2.0 AND 3.0 - GROUP DISCUSSION

Discuss Worksheet B.

- Discuss which criteria participants feel are most important in assessing feasibility (that is, which criteria outweigh the others).
- Ask participants if they feel there are additional factors to consider when assessing the feasibility of a control measure.
- After giving each participant the Answer Sheet for Worksheet B, explain why these answers were selected. The reasons are:

- If several control measures were mentioned in the description of Fictitia to prevent cases or to prevent deaths and complications of a health problem, all of those control measures were listed together as the "Principal Control Measure" for that problem. When these multiple control measures were assessed for technical and economic feasibility and for likelihood of good public response, they were assessed as a group.
- When a control measure was assessed for economic feasibility, the cost to implement the control measure as many times as it would be needed before a child reaches age 5 was considered. For example, a child will need 3 doses of polio vaccine to prevent the disease, at a total cost of U.S. $3.30. Treatment of diarrhoea with oral rehydration therapy costs about $0.76; however, a child is likely to get approximately 2 episodes of diarrhoea per year, or 10 episodes needing treatment before age 5, at a total cost of U.S. $7.60.
- The control measures with low "Technical Feasibility" also received low overall "Feasibility."
- The overall assessments of "Feasibility" were determined by averaging the assessments for "Technical Feasibility," "Economic Feasibility," and "Likelihood of Good Public Response."

Discuss Worksheet C.

- Discuss which criteria participants feel are most important in assessing priorities.
- Ask participants if they used additional factors to adjust their overall priorities.
- After giving each participant the Answer Sheet for Worksheet C, explain why the answers were selected. The reasons are:
  - The "Overall Importance" of a health problem was generally considered to be more important than the "Feasibility of Control Measure" for that problem. If a problem is very important, it should not be ignored because a highly feasible control measure does not exist. Rather, research and other efforts should be made to improve the feasibility of controlling that health problem.

Ask the participants for their ideas on how the procedure could be used in their countries. Suggest that the participants might use this process

to select priority health problems in their own countries in the following situations:

- as a member of an advisory group charged with selecting priorities,
- when in a position to suggest a procedure for selecting priorities.

Ensure that all participants understand the overall purpose of the procedure and the steps involved.

Tell the participants that in the Annex of the module there are extra copies of the worksheets for use in their countries, and that the worksheets may be adapted as needed. Offer to help them complete the worksheets during the course if they wish to do so.

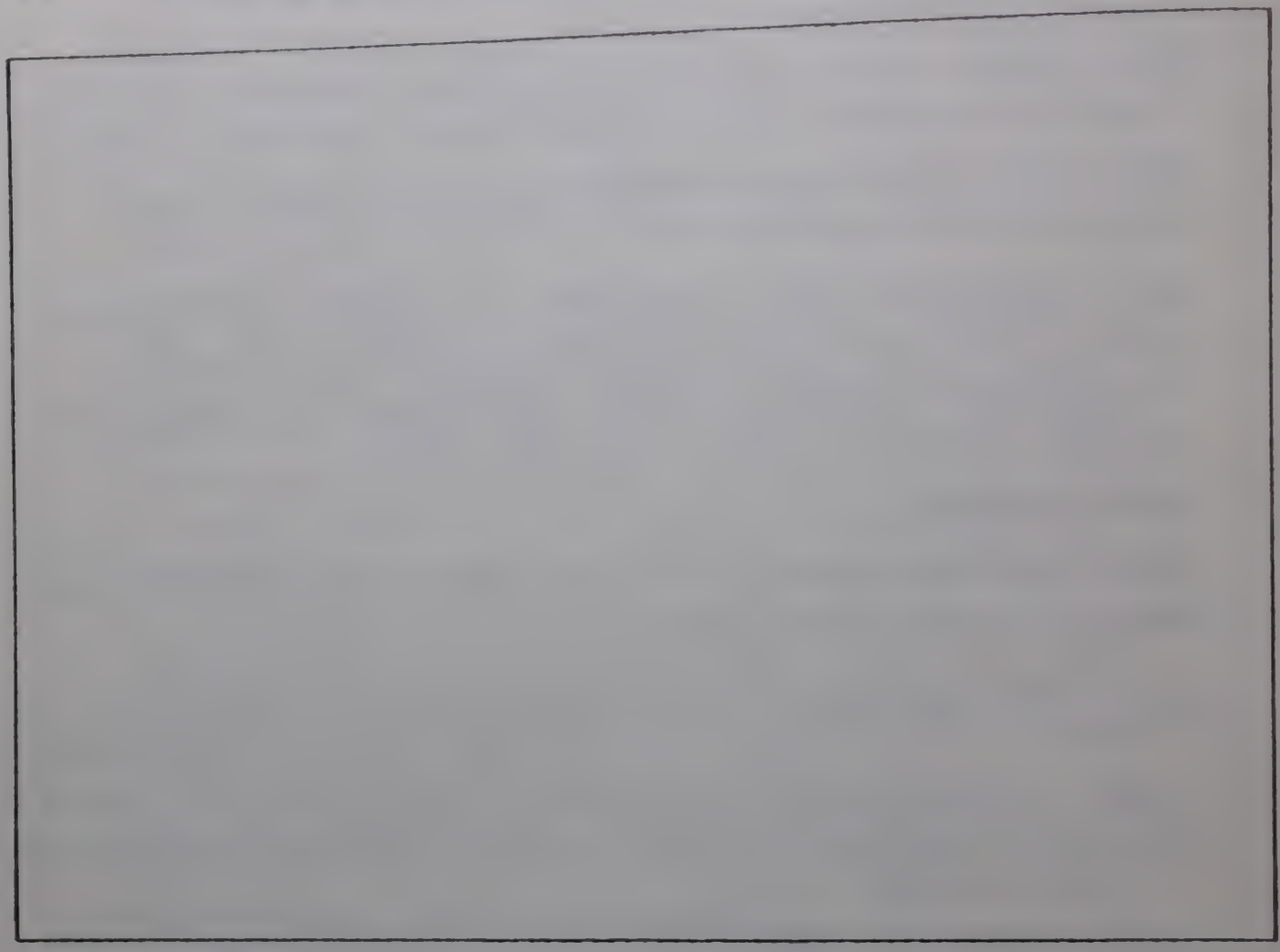
6. SUMMARY OF MODULE

Review the following points and any additional points which you may have listed in the box on the next page:

- The actual diseases selected as high priority are not as important as having a logical reason for selecting them. Data for selecting priorities may not always be accurate or complete, but that data should improve with time and then be used to make even more objective and logical decisions about priorities.
- The participants' presence in the course indicates that the diseases preventable by immunization are a high priority in their countries. This procedure might also be helpful even after national priorities have been selected. Comparing the priority of the diseases preventable by immunization with other diseases provides data which might be useful when requesting resources for an EPI programme.
- As a group, the diseases preventable by immunization are only one of many priority health problems which could be addressed as part of primary health care. Knowing which additional health problems are also of high priority enables development of long range plans for coordination of and effective primary health care.
- As a result of this exercise, Fictitia has selected the diseases preventable by immunization as priority diseases. The remainder of this course will focus on planning and managing an immunization programme.

Give the participants any necessary instructions about what to do upon completion of the module (for example, take a break or begin the module titled Disease Estimates).

ADDITIONAL POINTS TO BE CONVEYED TO PARTICIPANTS ABOUT NATIONAL PRIORITIES ARE:



NATIONAL PRIORITIES

Answer Sheets

Possible Answers to Worksheet A

WORKSHEET A

ASSESSING IMPORTANCE OF THE HEALTH PROBLEM

Health Problem	Incidence	Mortality	Disability	Overall Importance
Accidents	High	Moderate	Moderate	Moderate
Diarrhoea	High	High	Moderate	High
Diphtheria	Moderate	Low	Moderate	Moderate
Lower Respiratory Infection	High	High	Moderate	High
Malaria	Moderate	Moderate	High	Moderate
Measles	High	High	Moderate	High
Neonatal Tetanus	Low	High	Low	Moderate
Other Neonatal Conditions	Low	Moderate	High	Moderate
Pertussis	High	Moderate	Moderate	Moderate
Poliomyelitis	Low	Low	High	Moderate
Skin Infection	High	Low	Low	Low
Tuberculosis	Low	Low	High	Moderate
Undernutrition	Moderate	Moderate	High	Moderate

Record assessments as high, moderate, or low.

Possible Answers to Worksheet B

WORKSHEET B

ASSESSING FEASIBILITY OF THE CONTROL MEASURE

Health Problem	Principal Control Measure	Technical Feasibility	Economic Feasibility	Likelihood of Good Public Response	Feasibility of Control Measure
Accidents	To prevent cases: education and economic development	Low	--	--	Low
	To prevent deaths or complications: first aid, medical diagnosis and treatment, rehabilitation	Low	--	--	Low
Diarrhoea	To prevent cases: improved sanitation, water supply and domestic hygiene	Low	--	--	Low
	To prevent deaths or complications: OR therapy	High	Moderate	High	High
Diphtheria	To prevent cases: DPT vaccine	High	High	Moderate	High
	To prevent deaths or complications: antitoxin and antibiotics	Low	--	--	Low
Lower Respiratory Infection	To prevent cases: None	--	--	--	Low
	To prevent deaths or complications: drug therapy	Moderate	Low	Moderate	Moderate
Malaria	To prevent cases: drug prophylaxis and mosquito control	Moderate	Low	Moderate	Moderate
	To prevent deaths or complications: drug treatment	Moderate	Moderate	Moderate	Moderate

Record assessments as high, moderate, or low.

--continued

WORKSHEET B -- continued Possible Answers to Worksheet B continued

Health Problem	Principal Control Measure	Technical Feasibility	Economic Feasibility	Likelihood of Good Public Response	Feasibility of Control Measure
Measles	To prevent cases: measles vaccine	High	High	High	High
	To prevent deaths or complications: hospitalization	Low	--	--	Low
Neonatal Tetanus	To prevent cases: tetanus toxoid	High	High	High	High
	To prevent deaths or complications: hospitalization	Low	--	--	Low
Other Neonatal Conditions	To prevent cases: prenatal and delivery care	Low	--	--	Low
	To prevent deaths or complications: hospitalization	Low	--	--	Low
Pertussis	To prevent cases: DPT vaccine	High	High	Moderate	High
	To prevent deaths or complications: antibiotics	Low	--	--	Low
Poliomyelitis	To prevent cases: oral polio vaccine	High	High	High	High
	To prevent deaths or complications: rehabilitation, including orthopedic surgery and physiotherapy	Low	--	--	Low

--continued

Record assessments as high, moderate, or low.

WORKSHEET B -- continued

Health Problem	Principal Control Measure	Technical Feasibility	Economic Feasibility	Likelihood of Good Public Response	Feasibility of Control Measure
Skin Infection	To prevent cases: good hygiene and health education	Moderate	High	Low	Moderate
	To prevent deaths or complications: drugs	Moderate	Low	Low	Low
Tuberculosis	To prevent cases: BCG vaccine	Moderate	High	Moderate	Moderate
	To prevent deaths or complications: chemotherapy	Low	--	--	Low
Undernutrition	To prevent cases: education, food supplies, and child spacing	Moderate	Low	Low	Low
	To prevent deaths or complications: therapeutic feeding	Low	--	--	Low

Record assessments as high, moderate, or low.

Possible Answers to Worksheet C

WORKSHEET C

ESTABLISHING PRIORITIES

Health Problem	Overall Importance	Most Feasible Control Measure	Feasibility of Control Measure	Overall Priority	
Accidents	Moderate	first aid, medical diagnosis and treatment, rehabilitation	Low	Low	
Diarrhoea	High	OR therapy	High	High	✓
Diphtheria	Moderate	DPT vaccine	High	Moderate	
Lower Respiratory Infection	High	Drug therapy	Moderate	High	✓
Malaria	Moderate	Drug treatment	Moderate	Moderate	
Measles	High	Measles vaccine	High	High	✓
Neonatal Tetanus	Moderate	Tetanus toxoid	High	High	✓
Other Neonatal Conditions	Moderate	Prenatal and delivery care	Low	Moderate	
Pertussis	Moderate	DPT vaccine	High	Moderate	
Poliomyelitis	Moderate	Oral polio vaccine	High	Moderate	
Skin Infection	Low	Good hygiene and health education	Moderate	Low	
Tuberculosis	Moderate	BCG vaccine	Moderate	Moderate	
Under-nutrition	Moderate	Education, food supplies, and child spacing	Low	Moderate	

Record assessments as high, moderate, or low.

COURSE FACILITATOR GUIDELINES
FOR
DISEASE ESTIMATES*

*Includes guidelines for Disease Estimates: Introduction, Disease Estimates: Measles, Disease Estimates: Poliomyelitis, and Disease Estimates: Tetanus

Procedure	Relevant Pages in CF Guide	
	Detailed Guidelines	Answer Sheets
1. Distribute Disease Estimates: Introduction, Disease Estimates: Measles, Disease Estimates: Poliomyelitis, and Disease Estimates: Tetanus.		
2. Introduce the module.	30	
3. Explain how work on the module will be done.	30	
4. Explain where data on Fictitia can be located to complete the exercises in each booklet.	31	
5. Ensure that participants understand how to convert decimal fractions to percentages, how to use calculators, and how to round off.	31	
6. Set a time when the group will reconvene for discussion.		
7. Participants read pages 1-3 in Disease Estimates: Introduction.		
FOR PARTICIPANTS WHO WORK THROUGH DISEASE ESTIMATES: MEASLES		
8. Participants read pages M-1 and M-2, and complete Exercises A and B. Provide individual feedback on Exercises A and B.	32, 137, 139	48-49
9. Participants read pages M-6 and M-7 and complete Exercises C and D. Provide individual feedback on Exercises C and D.	32-33, 139	50-51
10. Participants read pages M-14 and M-16, complete Exercises E and F, and finish reading the booklet. Provide individual feedback on Exercises E and F.	33-34, 139	52-53
FOR PARTICIPANTS WHO WORK THROUGH DISEASE ESTIMATES: POLIOMYELITIS		
11. Participants read pages PO-1 and PO-2 and complete Exercise A. Provide individual feedback on Exercise A.	34-35, 137, 139	56

Continued

Procedures	Relevant Pages in CF Guide	
	Detailed Guidelines	Answer Sheets
12. Participants read page PO-5 and complete Exercises B and C. Provide individual feedback on Exercises B and C.	35-36, 139	57-58
13. Participants read page PO-9, complete Exercise D, and finish reading the booklet. Provide individual feedback on Exercise D.	36-37, 139	59
FOR PARTICIPANTS WHO WORK THROUGH DISEASE ESTIMATES: TETANUS		
14. Participants read pages TET-1 to TET-4, and complete Exercises A and B. Provide individual feedback on Exercises A and B.	37, 137, 139	62-63
15. Participants read pages TET-8 and TET-9, complete Exercises C and D, and finish reading the booklet. Provide individual feedback on Exercises C and D.	37-39, 139	64-65
WHEN ALL PARTICIPANTS HAVE COMPLETED AT LEAST ONE DISEASE BOOKLET:		
16. Lead group discussion on the module.	39-42, 141	
17. Summarize the module.	42	

DETAILED GUIDELINES FOR DISEASE ESTIMATES

2. INTRODUCTION OF MODULE

Briefly introduce the module by discussing the importance of estimating the morbidity and mortality due to the diseases preventable by immunization in a country. Explain that having data on the impact of each disease will help a programme manager establish appropriate priorities among the diseases as well as establish objectives and targets for the immunization programme.

3. EXPLANATION OF MODULE

Explain how work on Disease Estimates will be done.

- The module consists of 3 booklets, in addition to the Introduction: Disease Estimates: Measles, Disease Estimates: Poliomyelitis, and Disease Estimates: Tetanus. All participants will read pages 1-3 in Disease Estimates: Introduction. After each participant has read these pages, he will select a booklet on a disease--measles, poliomyelitis, tetanus--which he considers to be an important problem in his country. Since the Course Facilitator needs to be sure that all diseases are covered, each participant should tell the Course Facilitator which booklet he plans to work on before he begins. Every effort will be made to allow each participant to work through the disease booklet of his choice.
- Participants may work on as many diseases as time and interest allow. The only requirement is that each work through at least one booklet before the group discussion.
- As a participant completes the exercises in a booklet and as he has questions, he will discuss the work individually with a Course Facilitator.
- When all participants have completed at least one disease booklet, there will be a group discussion. The participant(s) who worked on each disease will present the method used to define the extent of the disease (what data and process were used to make calculations). He will present only the final answers obtained for each question and compare them generally with Fictitia reported data.

Tell participants that there are guidelines for estimating the morbidity and mortality of pertussis, diphtheria, and tuberculosis on pages 6-15 in Disease Estimates: Introduction. Explain that due to time limitations they should not review the guidelines for these diseases at this time. However, if participants wish to review the guidelines later when they have extra time, they should feel free to do so.

4. LOCATION OF DATA ON FICTITIA

Data on Fictitia will be used extensively in completing the exercises in the disease booklets. The data needed to complete the exercises in these booklets is located at the back of each booklet in the section titled "Selected Data on Fictitia."

5. EXPLANATION OF DECIMAL FRACTIONS, PERCENTAGES, CALCULATORS, AND ROUNDING OFF

Explain to participants that they will complete exercises in these booklets that involve many mathematical calculations.

a. Discuss the relationship between fractions, decimal fractions, and percentages, and write the following reminders on a blackboard or flipchart:

$$24/1000 = 0.024 = 2.4\%$$
$$32/100 = 0.32 = 32\%$$

Unless instructions say otherwise, percentages should be expressed as decimal fractions.

b. Basic instructions for use of calculators are as follows:

- Push numbers and mathematical signs on the calculator in the order that you would write them if you were performing calculations by hand. For example, to multiply 450 by 0.67, push buttons [4] [5] [0] [x] [.] [6] [7] [=] in that order. (The "0" in front of the decimal appears automatically.)
- If you make a mistake, push button [C] (meaning "clear"), and begin the calculation again.

c. Explain the rule for "rounding off" decimal fractions. You may wish to write the following example on a blackboard or poster:

- The digit 5 "rounds up." For example, the answer 0.0335 would be shortened to 0.034.

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8. EXERCISES A AND B - INDIVIDUAL FEEDBACK

When checking and discussing a participant's answers to these exercises, it is very important to focus on the overall processes of estimating measles incidence and reporting completeness of incidence rather than on simply filling in the blanks correctly. By asking the participant for his ideas on how the procedures could be used in his country, you can determine whether he understands them. If the participant initially feels that the procedures are not applicable for his country, you should discuss with him how they could be applied or adapted for such use.

In discussing the procedures for estimating the incidence and incidence rate of measles, and for estimating reporting completeness of incidence of the disease, you may wish to emphasize the following points:

- The annual incidence of measles is estimated using the birth rate in the country, correcting for deaths during the first year of life.
- Practically all unimmunized children get measles.
- 80% of measles cases are reported--mothers only say their children had measles 80% of the time (retrospective study). Follow-up studies on clinical cases of the disease (prospective studies) will show a higher percent of cases.

In concluding your discussion of measles incidence, you may wish to ask the participant the following question:

- Would the data necessary to estimate the annual incidence and incidence rate of measles and to estimate reporting completeness of incidence of the disease be available in your country? If not, how could you obtain it or make appropriate estimates to substitute?

Give the participant copies of the Answer Sheets for Exercises A and B to keep.

9. EXERCISES C AND D - INDIVIDUAL FEEDBACK

Again, focus on the overall processes of estimating measles mortality and reporting completeness of mortality rather than on simply filling in the blanks correctly. To ensure that the participant understands the procedures taught, ask him for his ideas on how the procedures could be used in his country.

In discussing Exercises C and D, be sure the participant understands the following points:

- Two factors contribute to high mortality from measles--high population density and undernutrition. High population density results in earlier exposure; thus, younger children (13-14 months old) acquire the disease and fatality rates are highest in this age group in urban areas. Undernutrition also produces high mortality. However, it is not clear why measles kills more undernourished children in Africa than in Asia.
- Children get measles when they are exposed to the disease and are no longer protected by maternal antibodies, that is, from the age of 6 months. Many children will retain maternal antibodies until the age of 9 months so immunization before 9 months will often not be effective. Since most unimmunized children get the disease in the first 2 years of life, it is generally useless to immunize after the age of 2 years.
- Measles mortality is usually better reported than measles morbidity because statistics in many countries are hospital-based, that is, mothers bring to the hospital only those children who are severely ill. Measles morbidity is better reported than mortality in regions/countries that have a developed network of health centres, that is, where mothers bring to the health centres those children who are moderately ill.

Before concluding with the discussion of measles mortality, ask the participant the following question:

- Would the data necessary to estimate the annual mortality and mortality rate of measles and to estimate reporting completeness of mortality from the disease be available in your country? If not, how could you obtain it or make appropriate estimates to substitute?

When you have finished discussing Exercises C and D, give the participant copies of the Answer Sheets for these exercises to keep.

10. EXERCISES E AND F - INDIVIDUAL FEEDBACK

Stress the following points in your discussion with the participant:

- The most frequent disabilities from measles are pneumonia, damage to one or both eyes or ears, and undernutrition (especially kwashiorkor). Data on these disabilities can best be obtained from

longitudinal follow-up studies of measles cases rather than from routine reporting systems.

- In developing countries measles transmission occurs throughout the year with epidemics during the dry season. It is important to determine when measles incidence is highest in a country so a country's periodic measles immunization programme can be conducted before the transmission season.

When you have finished discussing Exercises E and F with the participant and have given him copies of the Answer Sheets to keep, remind him that there are extra copies of the guidelines for estimating measles incidence and mortality for his own use in the Annex of the booklet. Explain that the guidelines may need to be adapted to suit his country. Offer to help the participant complete the guidelines during the course if he wishes to do so.

If it is not yet time for the group discussion of the module and the participant wishes to do so, tell him he can begin work on either Disease Estimates: Poliomyelitis or Disease Estimates: Tetanus.

DISEASE ESTIMATES: POLIOMYELITIS

11. EXERCISE A - INDIVIDUAL FEEDBACK

When checking and discussing a participant's answers to Exercise A, focus on the overall process of estimating the prevalence of paralytic poliomyelitis rather than on simply filling in the blanks correctly. By asking the participant for his ideas on how the procedure could be used in his country, you can determine if he understands it.

When a participant reports to you to discuss Exercise A, first explain to him why procedures for calculating mortality from poliomyelitis have not been provided in the booklet. The reasons are:

- Mortality data are never used in the field.
- Mortality from poliomyelitis is only 1% of the population--incidence is 10%.
- Poliomyelitis is more frequently a crippling than a killing disease.

After discussing the procedure used and data needed to calculate the prevalence of paralytic poliomyelitis, you may wish to ask the participant the following question:

- Would the data necessary to estimate the prevalence and prevalence rate of paralytic poliomyelitis be available in your country? If not, how could you obtain it or make appropriate estimates to substitute?

Give the participant a copy of the Answer Sheet for Exercise A to keep when you have finished the discussion.

12. EXERCISES B AND C - INDIVIDUAL FEEDBACK

Again, focus on the procedures for estimating incidence and reporting completeness of incidence of poliomyelitis rather than on whether the participant filled in the blanks correctly. Ask the participant for his ideas on how the procedures could be used in his country.

In your discussion of Exercises B and C with the participant, you may wish to ask him questions such as the following:

- What are the basic assumptions used in Fictitia in estimating poliomyelitis incidence?

  In Fictitia, prevalence rates of residual paralysis due to poliomyelitis can be translated into incidence rates. Children contract the disease during the first 3 years of life. Residual paralysis surveys pick up about half of the actual cases of the disease that have occurred in the cohort being studied.

- What is the relation of poliomyelitis incidence to population density in Fictitia?

  Incidence is higher in the Coastal Region where 40% of the population live in towns and the population density is greater than 90 persons per square kilometre.

- Why do you think reporting of poliomyelitis incidence is better in the Coastal Region than in the other regions in the country?

  The Coastal Region is densely populated and has good health facilities. This results in better reporting.

In concluding the discussion of Exercises B and C with the participant, stress the following points:

- Poliomyelitis is becoming a problem in developing countries, particularly in urban areas whose populations are not immunized. If information on differences in poliomyelitis between urban and rural areas is available from school surveys or special studies in your country or in an area with similar characteristics, it should be compiled to be considered in planning the immunization programme.

- Although the figure 3 is given for estimating the annual incidence rate of poliomyelitis in this course, you would divide by 4 or 5 if national data on age distribution in your country indicate that 99% (or most) cases occur before age 4 or 5.

Give the participant copies of the Answer Sheets for Exercises B and C to keep when you have finished this discussion on poliomyelitis incidence.

13. EXERCISE D - INDIVIDUAL FEEDBACK

When discussing Exercise D with the participant, ask him the following question:

- Why in Fictitia is it useless to administer vaccine against poliomyelitis to children at 3 years of age and up?

  It would be useless because the number of susceptibles by that age becomes very low (10% of children are susceptible to poliovirus type I, the most common cause of paralysis, and 30% and 20% of children are susceptible to types II and III, respectively).

Explain to the participant that poliomyelitis is a disease of young children. Emphasize that immunizations should be carried out as early as possible. One reason for this is that polio may be invoked by injection of irritating substances--up to 30% of cases originate when irritating substances are injected (provocating poliomyelitis).

In concluding this discussion of age-specific immunity to each type of poliomyelitis virus, you may wish to ask the participant such questions as the following:

- Would the data necessary to determine age-specific immunity to each type of poliomyelitis virus be available in your country? If not, how could you obtain it or make appropriate estimates to substitute?
- Do you think performing this step--estimating age-specific immunity to each type of polio virus--is necessary for your country? Why or why not?

When you have finished discussing Exercise D with the participant and have given him a copy of the Answer Sheet to keep, remind him that there are extra copies of the guidelines for estimating prevalence and incidence of poliomyelitis and age-specific immunity to each type of poliomyelitis virus for his own use in the Annex to the booklet. Offer to help the participant complete the guidelines during the course if he wishes to do so.

If it is not yet time for the group discussion and the participant wishes to do so, tell him he can begin work on either Disease Estimates: Measles or Disease Estimates: Tetanus.

DISEASE ESTIMATES: TETANUS

14. EXERCISES A AND B - INDIVIDUAL FEEDBACK

To ensure that the participant understands the procedures to use and data needed to estimate the incidence and reporting completeness of incidence for tetanus (neonatal, non-neonatal, and all tetanus), focus on the overall process presented in the booklet rather than on whether the participant filled in the blanks in the exercises correctly.

Emphasize the following points in your discussion with the participant:

- The incidence of non-neonatal tetanus (post-delivery, post-abortion, iatrogenic, due to ritual practices like circumcision, excision, scarification, etc.) is higher than is usually admitted.
- We have a very effective vaccine at our disposal which is stable, easy to manipulate, and can be associated with the majority of other vaccines. Immediate priorities for immunization against tetanus are young children (DPT) and pregnant women (TT), and perhaps even all women of childbearing age. The need for immunization is universal.
- Neonatal tetanus control programmes must also stress the importance of hygienic delivery techniques.
- Real incidence of neonatal tetanus is much higher than reported incidence. This is because to obtain accurate estimates, it would be necessary to specify the extent of the 2 types of tetanus (that is, neonatal and non-neonatal) through house-to-house surveys.

In concluding your discussion of tetanus incidence, ask the participant the following question:

- Would the data necessary to estimate the annual incidence and incidence rate of tetanus and to estimate the reporting completeness of incidence of the disease be available in your country? If not, how could you obtain it or make appropriate estimates to substitute?

When you have finished your discussion of Exercises A and B, give the participant a copy of the Answer Sheet for each exercise to keep.

15. EXERCISES C AND D - INDIVIDUAL FEEDBACK

Again, focus on the overall processes of estimating tetanus mortality and reporting completeness of mortality from the disease rather than on simply filling in the blanks correctly.

In discussing these exercises with the participant, you may wish to ask him the following question and mention the following points about the tetanus death survey described on page TET-15 in the booklet:

- Why do you think the 1-13 month age group rather than the 0-12 month age group is included in the survey?

  If children in the 0-12 month age group are included, the estimated number of deaths will be lower. This is because children in the first month of life may still be suffering from the disease or may be in the incubation period.
- Mothers will not forget deaths when given a recall period of 1 year, but cultural reasons may prevent them from mentioning the deaths.
- To validate a survey, it is necessary to include a certain number of women and a certain number of births. The information can be used to estimate the crude birth rate. The estimated rate should be approximately the same as the crude birth rate estimated from other sources. If it is not the deaths will be underestimated--most probably because some births were missed and possibly some deaths.
- Sometimes children die in their first month of life with neurological symptoms due to birth injuries. It is important therefore to differentiate those deaths from tetanus (differential diagnosis). This is done by asking if a child was sucking normally, then developed stiffness of the mouth and an inability to suck. If a child did not suck normally, this indicates that he had a disorder other than neonatal tetanus.

In concluding this discussion, emphasize that neonatal tetanus is one of the major causes of infant mortality in many developing countries. Ask the participant if the data necessary to estimate the annual mortality from tetanus would be available in his country and, if not, how he could obtain it or make appropriate estimates to substitute.

After you have given the participant copies of the Answer Sheets for Exercises C and D to keep, remind him that there are extra copies of the guidelines for estimating tetanus incidence and mortality for his own use in the Annex to the booklet. Explain that the guidelines may need to be adapted to suit his country. Offer to help him complete the guidelines during the course if he wishes to do so.

If it is not yet time for the group discussion of the module and the participant wishes to do so, tell him he can begin work on either Disease Estimates: Measles or Disease Estimates: Poliomyelitis.

16. DISEASE ESTIMATES - GROUP DISCUSSION

At the scheduled time, begin the group discussion of the module. Open the discussion by stating that the purpose of the discussion is to review the methods used to estimate the impact of the diseases preventable by immunization in a country (that is, the procedures used and data needed to make the calculations). Explain that the discussion will focus on the diseases measles, poliomyelitis, and tetanus. The participant(s) who worked through the booklet on each disease will lead the discussion of that disease.* Tell participants that after the discussion on measles, poliomyelitis, and tetanus, you will review some important points about diphtheria, pertussis, and tuberculosis.

MEASLES

The first disease to be discussed is measles. Ask the participant(s) who worked through the booklet Disease Estimates: Measles to explain the procedures used, data needed, and sources of data needed to perform the following steps. Emphasize the need to focus the explanations on process and significance of results rather than on what numbers should be written in each blank in the booklet.

- Estimate the annual incidence and incidence rate of measles.
- Estimate the annual mortality and mortality rate of measles.
- Estimate the frequency of various types of disabilities from measles.
- Determine if seasonal variations occur in the incidence of measles.

Be sure that the important points about measles shown on pages 32 - 34 in this guide are mentioned in the discussion.

When the discussion on measles is completed, give those participants who did not work through the measles booklet copies of the Answer Sheets for the exercises in the booklet to keep.

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*Note: If more than one participant worked through a booklet, you may wish to have each of these participants lead a different part of the discussion.

POLIOMYELITIS

The second disease to be discussed is poliomyelitis. Ask the participant(s) who worked through the booklet Disease Estimates: Poliomyelitis to explain the procedures used, data needed, and sources of data needed to perform the following steps. Emphasize the need for the participant(s) to focus his explanation on process and significance of results rather than on what numbers should be written in each blank in the booklet.

- Estimate the prevalence and prevalence rate of paralytic poliomyelitis.
- Estimate the annual incidence and incidence rate of polimyelitis.
- Estimate the age-specific immunity to each type of poliomyelitis virus.

Be sure that the important points about poliomyelitis on pages 34 - 37 in this guide are mentioned in the discussion.

When the discussion on poliomyelitis is completed, give those participants who did not work through the poliomyelitis booklet copies of the Answer Sheets for each exercise in the booklet to keep.

TETANUS

The third disease to be discussed is tetanus. Ask the participant(s) who worked through the booklet Disease Estimates: Tetanus to explain the procedures used, data needed, and sources of data needed to perform the following steps. Emphasize the need for the participant(s) to focus his explanation on process and significance of results rather than on what numbers should be written in each blank in the booklet.

- Estimate the annual incidence and incidence rate of neonatal tetanus.
- Estimate the annual incidence and incidence rate of non-neonatal tetanus.
- Estimate the annual incidence and incidence rate of all tetanus.
- Estimate the annual mortality and mortality rate of neonatal tetanus.
- Estimate the annual mortality and mortality rate of non-neonatal tetanus.
- Estimate the annual mortality and mortality rate of all tetanus.

Be sure that the important points about tetanus shown on pages 37 - 39 in this guide are mentioned in the discussion.

When the discussion of tetanus is completed, give those participants

who did not work through the tetanus booklet copies of the Answer Sheets for each exercise in the booklet to keep. Also, remind all participants that there are extra copies of the guidelines for estimating incidence and/or mortality of each disease for their own use in the Annex to each booklet. Then, review the following points about pertussis, diphtheria, and tuberculosis with the participants.

PERTUSSIS

- Pertussis by its frequency and severity closely follows measles and represents a major public health problem.
- Pertussis incidence like measles incidence is estimated using the birth rate. It is assumed with measles that 100% of all children who are not immunized will eventually have the disease; with pertussis, however, it is assumed that 80% of all unimmunized children will eventually have the disease. Of these only half (40%) will be clinically manifested as whooping cough.
- Since maternal antibodies play such a small role in host defenses against pertussis, the disease starts early, shortly after birth, and mortality is particularly high during the first months of life.
- It is important to start administering vaccine against pertussis early. It is not necessary to immunize those over 3 years of age since the disease is benign at that age.
- Major disabilities due to pertussis are undernutrition, pneumonia, and encephalitis.

DIPHTHERIA

- The importance of diphtheria in public health is poorly understood in developing countries. Its incidence is felt to be higher in urban areas.
- Cutaneous diphtheria is common, benign and immunizing.
- Clinical diphtheria surveys are complicated by frequent errors in clinical diagnosis; laboratory confirmation is necessary for study purposes.
- The Schick test survey only gives information on infections and not on cases of faucial diphtheria. It is also operationally difficult and its reliability debatable.
- The diphtheria component of conventional DPT vaccine is cheap, safe,and and not antagonistic to other components.

- It is hypothesized that urbanization with improvement of hygiene and decline in cutaneous diphtheria will result in a major increase of clinical diphtheria.

TUBERCULOSIS

- Curative treatment of tuberculosis is inefficient. The number of tuberculosis cases under treatment is much higher than the reported incidence, which implies that treatment programmes are keeping patients under therapy for longer than should be necessary.
- Tuberculosis is generally an important public health problem in developing countries due to its morbidity (in which prevalence is higher than incidence) and mortality.
- Morbidity and mortality due to tuberculosis are often underestimated. For this reason, it is necessary to determine the annual risk of infection by a tuberculin skin test survey. Knowing the annual risk of infection, it is possible by using the existing classical models (International Union for the Control of Tuberculosis) to estimate prevalence of sputum positive disease among all ages and incidence of tuberculosis meningitis in 0-4 year-old children.
- In countries where BCG is still included in the programme, its use has been justified by the following assumptions: high annual risk of infection, poor case detection, and inefficient therapeutic efforts. It now appears that additional information is needed to justify these assumptions.

17. SUMMARY OF MODULE

Review the following points and any additional points you may have listed in the box on the next page:

- Knowing the impact of the various diseases preventable by immunization in your country will help you determine appropriate priorities among the diseases for each region of the country and to establish reasonable objectives and targets for your programme.
- The information needed to estimate the impact of these diseases will frequently be incomplete or unavailable. As a result, you may need to conduct special studies to obtain additional data.

Give the participants any necessary instructions about what to do upon completion of the module (for example, take a break or begin the module titled Regional Priorities).

ADDITIONAL POINTS TO BE CONVEYED TO PARTICIPANTS ABOUT DISEASE ESTIMATES ARE:

INTRODUCTION:

MEASLES:

POLIOMYELITIS:

TETANUS:

PERTUSSIS:

DIPHTHERIA:

TUBERCULOSIS:

DISEASE ESTIMATES

MEASLES, POLIOMYELITIS, TETANUS

Answer Sheets

DISEASE ESTIMATES: MEASLES

Answer Sheets

Answers to Exercise A

Incidence

1. a. 0.04
   b. 0.90
   c. 0.04 x 0.90 = 0.036
   d. 0.036 x 100,000 = 3,600

2. a. 3,600
   b. 3,600 ÷ 100,000 = 0.036
   c. 16,000,000
   d. 0.036 x 16,000,000 = 576,000

3. a. 3,600
   b. 3,600 ÷ 100,000 = 0.036
   c. 1,000,000
   d. 0.036 x 1,000,000 = 36,000

Reporting Completeness of Incidence

TABLE 1: REPORTING COMPLETENESS OF INCIDENCE

Region	Reported Incidence	Estimated Incidence	Reporting Completeness
Delta	190	36,000	0.5%
Coastal	47,000	360,000	13.1%
Highland	4,900	144,000	3.4%
Mountain	140	36,000	0.4%

Yes, the Coastal Region seems to have a more reliable reporting system for measles incidence than do the Delta, Highland, and Mountain Regions. 13.1% of actual cases of the disease in the Coastal Region are reported, compared to only 3% and less of cases in the other 3 regions.

Mortality

1.

TABLE 2: AGE DISTRIBUTION OF MEASLES INCIDENCE AND MORTALITY IN THE DELTA REGION OF FICTITIA

Age	% Distribution By Age	Age-Specific Incidence	Age-Specific Case Fatality Rate	Age-Specific Mortality
0-2 mos.	-	-	-	-
3-8 mos.	-	-	0.04	-
9-14 mos.	0.20	7,200	0.05	360
15-35 mos.	0.40	14,400	0.03	432
3 yrs. +	0.40	14,400	0.01	144
Total	-	36,000	-	936

2. a. 936
   b. 1,000,000
   c. 936 ÷ 1,000,000 = 0.000936
   d. 0.000936 x 100,000 = 93.6

3. Yes, there are differences in the distribution of cases among the 4 regions of Fictitia. Children start getting measles at a younger age in the Coastal and Highland Regions, and the percentage distribution of cases in these regions is highest in the 9-14 mos. and 15-35 mos. age groups. Children in the Delta and Mountain Regions start getting measles at a later age, and the percentage distribution of cases is highest in both of these regions in the 3 yrs.+ age group. These differences probably exist because the Coastal and Highland Regions are more densely populated than the Delta and Mountain Regions.

Reporting Completeness of Mortality

TABLE 5: REPORTING COMPLETENESS OF MORTALITY

Region	Reported Mortality	Estimated Mortality	Reporting Completeness
Delta	150	936	16%
Coastal	3,050	15,120	20.2%
Highland	1,841	4,752	38.7%
Mountain	125	792	15.8%

4. The Coastal and Highland Regions seem to have more reliable reporting systems for measles mortality than do the Delta and Mountain Regions.

5. Measles reporting in Fictitia is better for mortality than for incidence. This is because in Fictitia statistics are mostly hospital-based rather than health-centre based (that is, mothers bring to hospitals those children who are severely ill rather than bringing to health centres those children who are moderately ill). Better reporting of measles morbidity than mortality can be found in countries/regions that have a developed network of health centres.

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Frequency of Disability from Measles

1. The major types of disabilities are pneumonia, dehydration, undernutrition, and otitis. The rate of disabilities in the study is high ($\geq$ 30%).

2. No other information is available on measles disability in Fictitia.

3. The rate of disabilities from measles in Fictitia is high ($\geq$ 30%).

Seasonal Variations in Measles Incidence

Yes, measles reports have been compiled on a monthly or quarterly basis. These reports suggest that measles incidence in Fictitia rises in the dry season, peaks at the end of the dry season, and declines in the wet season.

DISEASE ESTIMATES: POLIOMYELITIS

Answer Sheets

Answers to Exercise A

Prevalence

1. a. 180
   b. 1,500
   c. 180 ÷ 1,500 x 100,000 = 1,200
   d. 1,200 x 2 = 2,400

2. a. 2,400
   b. 2,400 ÷ 100,000 = 0.24
   c. 10,000,000
   d. 0.24 x 10,000,000 = 240,000

3. a. 240,000
   b. 24,000
   c. 240,000 + 24,000 = 264,000

4. a. 264,000
   b. 16,000,000
   c. 264,000 ÷ 16,000,000 = 0.0165
   d. 0.0165 x 100,000 = 1,650

Answers to Exercise B

Incidence

1. a. 2,400
   b. 2,400 ÷ 3 = 800
   c. 0.10
   d. 800 x 0.10 = 80

2. a. 80
   b. 80 ÷ 100,000 = 0.0008
   c. 10,000,000
   d. 0.0008 x 10,000,000 = 8,000

Reporting Completeness of Incidence

TABLE 1: REPORTING COMPLETENESS OF INCIDENCE

Region	Reported Incidence	Estimated Incidence	Reporting Completeness
Coastal	825	8,000	10.3%
Delta	13	798	7.5%
Highland	40		
Mountain	7		

Yes, the Coastal Region seems to have a more reliable reporting system for poliomyelitis incidence than do the Delta, Highland, and Mountain Regions. 10.3% of actual cases of the disease in the Coastal Region are reported, compared to only 7.5% of cases in the other 3 regions combined.

Age-Specific Immunity to Each Type of Poliomyelitis Virus

1. Table 2: Immunity to Poliomyelitis Virus

Age	TYPE I		TYPE II		TYPE III	
	%Immune	%Susceptible	%Immune	%Susceptible	%Immune	%Susceptible
5-8 mos.	10	90	5	95	20	80
9-14 mos.	30	70	10	90	50	50
15-35 mos.	60	40	50	50	70	30
36-59 mos.	90	10	70	30	80	20

2. What is the largest percentage of persons in each age group who are susceptible to <u>at least one</u> type of poliomyelitis virus?

5-8 mos. 95%
9-14 mos. 90%
15-35 mos. 50%
36-59 mos. 30%

3. Would there be any significant advantages in administering vaccine to children at 8 months of age rather than at 3 years of age? Why or why not?

Yes, more polio cases would be prevented.

DISEASE ESTIMATES: TETANUS

Answer Sheets

Incidence

1. a. 30
   b. 1,500
   c. 30 ÷ 1,500 x 1,000 = 20
   d. 0.85
   e. 20 ÷ 0.85 = 23.5
   f. 0.04
   g. 23.5 x 0.04 x 100 = 94

2. a. 94
   b. 94 x 2 = 188

3. a. 188
   b. 188 ÷ 100,000 = 0.00188
   c. 16,000,000
   d. 0.00188 x 16,000,000 = 30,080

Reporting Completeness of Incidence

TABLE 1: REPORTING COMPLETENESS OF INCIDENCE

Reported Incidence	Estimated Incidence	Reporting Completeness
620	30,080	2.1%

No, Fictitia does not seem to have a reliable reporting system for tetanus incidence, as only 2.1% of actual cases of the disease in the country are reported.

Mortality

1. a. 0.85
   b. 94
   c. 0.85 x 94 = 79.9

2. a. 79.9
   b. 79.9 ÷ 100,000 = 0.000799
   c. 16,000,000
   d. 0.000799 x 16,000,000 = 12,784

3. a. 0.40
   b. 94
   c. 0.40 x 94 = 37.6

4. a. 37.6
   b. 37.6 ÷ 100,000 = 0.000376
   c. 16,000,000
   d. 0.000376 x 16,000,000 = 6,016

5. a. 12,784
   b. 6,016
   c. 12,784 + 6,016 = 18,800

Reporting Completeness of Mortality

TABLE 3: REPORTING COMPLETENESS OF TETANUS MORTALITY

Reported Mortality	Estimated Mortality	Reporting Completeness
580	18,800	3%

No, Fictitia does not seem to have a reliable reporting system for tetanus mortality, as only 3% of actual deaths from the disease in the country are reported.

COURSE FACILITATOR GUIDELINES

FOR

REGIONAL PRIORITIES

Procedure	Relevant Pages in CF Guide	
	Detailed Guidelines	Answer Sheets
1. Distribute the module.		
2. Introduce the module.	69	
3. Explain how work on the module will be done.	69	
4. Explain where data on Fictitia can be located to complete the Exercise in the module.	70	
5. Participants read to end of module and read description of Fictitia in Introduction pages 7-17. They complete Sections 1.0-3.0 of the Exercise (Worksheets A-C). Lead group discussion on Sections 1.0, 2.0 and 3.0.	70-71, 137, 141	74-76
6. Summarize major points of module.	71	

DETAILED GUIDELINES FOR

REGIONAL PRIORITIES

2. INTRODUCTION OF MODULE

Explain that an essential step in planning an immunization programme is to establish regional priorities among the diseases preventable by immunization. This ensures that programme efforts will be focused on those diseases and in those regions of a country where they promise to have the greatest impact on reducing morbidity and mortality. This module presents a procedure which could be used to establish regional priorities among diseases preventable by immunization for a country.

3. EXPLANATION OF MODULE

A. Explain how the format of Regional Priorities differs from the format of other modules in this course.

- Participants are not given both guidelines and separate practice exercises in which they must perform certain steps using data on Fictitia, as they were given in the Disease Estimates booklets and will be given in the remainder of the course materials. Instead, as in National Priorities, they are given only an exercise. By working through the exercise to determine the Fictitia's regional priorities for immunization, they will learn a procedure which can be used to perform this step for their countries.

B. Explain how work on Regional Priorities will be done.

- Participants will work through Sections 1.0 - 3.0 of the Exercise. Unless they have questions and/or have difficulty doing the work, they do not need to report to the Course Facilitator until they finish the module.
- When all participants have completed Sections 1.0 - 3.0 (Worksheets A, B and C), there will be a group discussion. Emphasize that there are no single right answers for the worksheets, so participants should be able to provide oral rationale for their answers.

4. LOCATION OF DATA ON FICTITIA

Fictitia data will be used extensively in completing the 3 worksheets in this module. Location of the data needed to complete each worksheet will be specified in the module at the beginning of each section. Participants should read these instructions carefully. Explain to participants that data on Fictitia that they will need to complete the worksheets will be located both on pages 12 and 13a in the module and in the discription of Fictitia in the Introduction booklet.

5. SECTIONS 1.0 - 3.0 (WORKSHEETS A - C) - GROUP DISCUSSION

Discuss Worksheet A.

- Discuss which criteria participants feel are most important in assessing importance of the diseases preventable by immunization (that is, which criteria outweigh the others).
- Ask participants for their assessments of "Overall Importance" for each disease in each region. Ask those whose answers vary from the majority to explain why and how they reached their conclusions, but emphasize that there are no single right answers. Do not try to get a consensus.
- Give participants the Answer Sheet for Worksheet A. Explain that the "Overall Importance" for each disease in each region was selected by averaging the assessments for "Mortality," "Disability," and "Incidence."

NOTE: If a participant wants to know why the morbidity and mortality estimates for the diseases preventable by immunization shown on the table on page 9 in the description of Fictitia differ from the morbidity and mortality estimates shown for these diseases on the tables on pages 12 and 13a in the module, explain that these are only estimates and that the estimates were obtained using 2 different methods.

Discuss Worksheet B.

- Discuss which criteria participants feel are most important in assessing likelihood of success of an immunization programme.
- Ask participants if they feel there are additional factors to consider when assessing the likelihood of success of an immunization programme for the diseases preventable by immunization in each region of a country (for example, political considerations).
- Give participants the Answer Sheet for Worksheet B. Emphasize that the answers on the Answer Sheet are possible answers.

Discuss Worksheet C.

- Discuss which criteria participants feel are most important in assessing priorities.
- Ask participants if they used additional factors to adjust their overall priorities.
- Give participants the Answer Sheet for Worksheet C. Emphasize that the answers on this Answer Sheet are possible answers.

Ask the participants for their ideas on how the procedure for setting regional priorities for the diseases preventable by immunization could be used in their countries. Ensure that all participants understand the overall purpose of the procedure and the steps involved.

Tell the participants that in the Annex of the module there are extra copies of the worksheets for use in their countries, and that the worksheets may be adapted as needed. Offer to help them complete the worksheets during the course if they wish to do so.

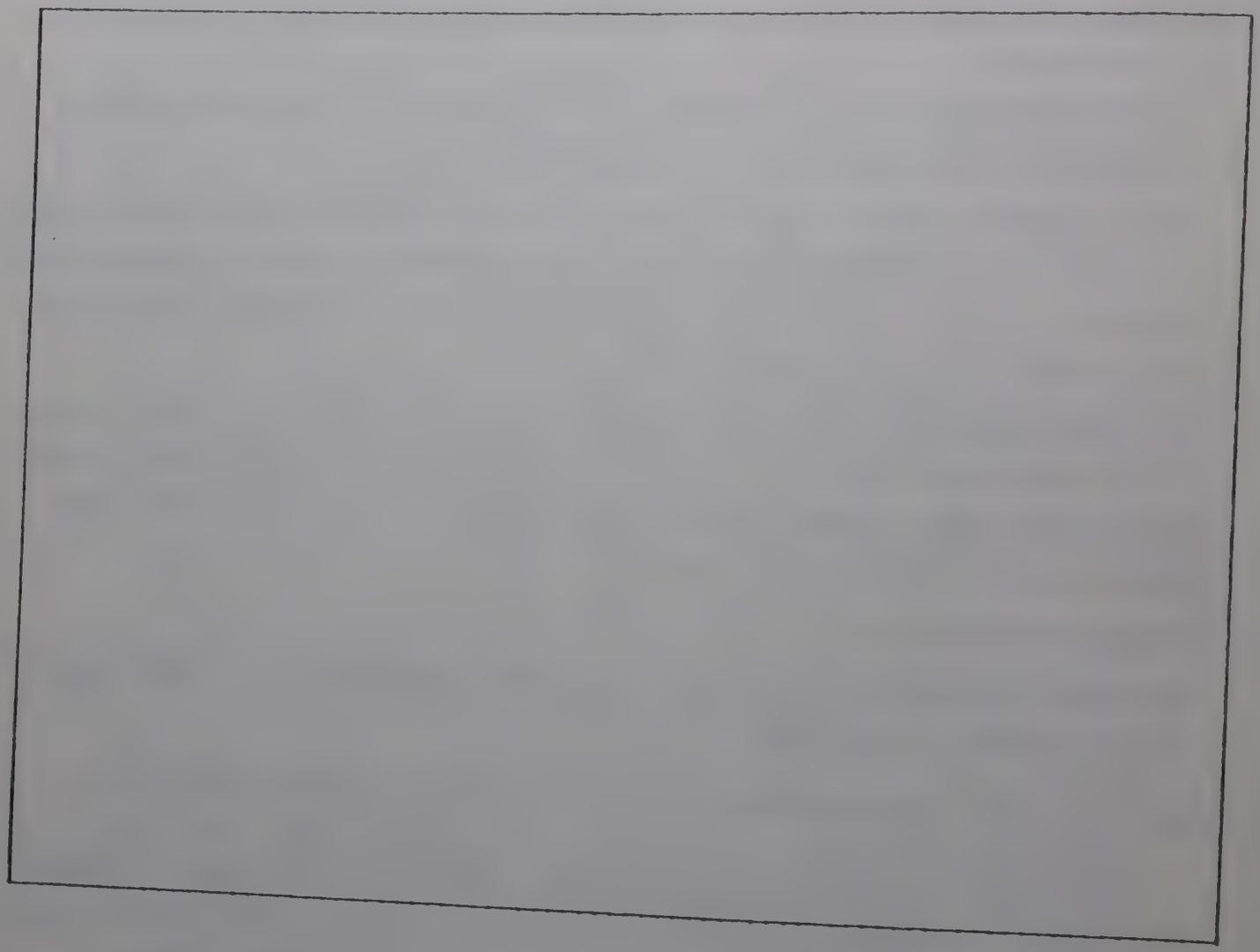
6. SUMMARY OF MODULE

Review the following point and any additional points which you have listed in the box on the next page:

- The actual disease and regions selected as high priority are not as important as having a logical reason for selecting them. Data for selecting regional priorities among the diseases preventable by immunization may not always be accurate or complete, but those data should improve with time and then be used to make even more objective and logical decisions about priorities.

Give the participants any necessary instructions about what to do upon completion of the module (for example, take a break or begin the module titled Programme Targets).

ADDITIONAL POINTS TO BE CONVEYED TO PARTICIPANTS ABOUT REGIONAL PRIORITIES ARE:



REGIONAL PRIORITIES

Answer Sheets

WORKSHEET A

ASSESSING IMPORTANCE OF THE DISEASES PREVENTABLE BY IMMUNIZATION

Disease	Importance Factors	REGIONS			
		Delta	Coastal	Highland	Mountain
Diphtheria	**Mortality**	low	low	low	low
	Disability	moderate	moderate	moderate	moderate
	Incidence	moderate	moderate	moderate	moderate
	Importance	moderate	moderate	moderate	moderate
Measles	**Mortality**	high	high	high	high
	Disability	moderate	moderate	moderate	moderate
	Incidence	high	high	high	high
	Importance	high	high	high	high
Neonatal Tetanus	**Mortality**	high	high	high	high
	Disability	low	low	low	low
	Incidence	moderate	moderate	moderate	moderate
	Importance	high	high	high	high
Non-neonatal Tetanus	**Mortality**	moderate	moderate	moderate	moderate
	Disability	low	low	low	low
	Incidence	moderate	moderate	moderate	moderate
	Importance	moderate	moderate	moderate	moderate
Pertussis	**Mortality**	moderate	moderate	moderate	moderate
	Disability	moderate	moderate	moderate	moderate
	Incidence	high	high	high	high
	Importance	moderate	moderate	moderate	moderate
Poliomyelitis	**Mortality**	low	low	low	low
	Disability	high	high	high	high
	Incidence	low	low	low	low
	Importance	moderate	moderate	moderate	moderate
Tuberculosis	**Mortality**	low	moderate	low	low
	Disability	high	high	high	high
	Incidence	low	moderate	low	low
	Importance	moderate	high	moderate	moderate

Record assessments as high, moderate, or low.

WORKSHEET B
ASSESSING LIKELIHOOD OF SUCCESS

Disease	Success Factors	REGIONS			
		Delta	Coastal	Highland	Mountain
Diphtheria	Government Commitment	moderate	high	high	moderate
	Technical	low	high	moderate	low
	Management	low	high	moderate	low
	Public Response	low	moderate	moderate	low
	Success	low	high	moderate	low
Measles	Government Commitment	moderate	high	high	moderate
	Technical	moderate	high	high	moderate
	Management	low	high	moderate	low
	Public Response	moderate	high	high	moderate
	Success	moderate	high	high	moderate
Neonatal Tetanus	Government Commitment	moderate	high	high	moderate
	Technical	moderate	high	high	moderate
	Management	low	high	moderate	low
	Public Response	moderate	high	high	moderate
	Success	moderate	high	high	moderate
Non-neonatal Tetanus	Government Commitment	moderate	high	high	moderate
	Technical	low	high	moderate	low
	Management	low	high	moderate	low
	Public Response	low	moderate	moderate	low
	Success	low	high	moderate	low
Pertussis	Government Commitment	moderate	high	high	moderate
	Technical	low	high	moderate	low
	Management	low	high	moderate	low
	Public Response	low	moderate	moderate	low
	Success	low	high	moderate	low
Poliomye-litis	Government Commitment	moderate	high	high	moderate
	Technical	low	high	moderate	low
	Management	low	high	moderate	low
	Public Response	moderate	high	high	moderate
	Success	moderate	high	high	moderate
Tuberculosis	Government Commitment	moderate	high	high	moderate
	Technical	low	moderate	moderate	low
	Management	low	high	moderate	low
	Public Response	low	moderate	moderate	low
	Success	low	moderate	moderate	low

Record assessments as high, moderate, or low.

WORKSHEET C

ESTABLISHING PRIORITIES

Disease	Factors	REGIONS			
		Delta	Coastal	Highland	Mountain
Diphtheria	Importance	moderate	moderate	moderate	moderate
	Success	low	high	moderate	low
	Overall Priority	low	high ✓	moderate	low
Measles	Importance	high	high	high	high
	Success	moderate	high	high	moderate
	Overall Priority	high ✓	high ✓	high ✓	high ✓
Neonatal Tetanus	Importance	high	high	high	high
	Success	moderate	high	high	moderate
	Overall Priority	moderate	high ✓	high ✓	moderate
Non-neonatal Tetanus	Importance	moderate	moderate	moderate	moderate
	Success	low	high	moderate	low
	Overall Priority	low	high ✓	moderate	low
Pertussis	Importance	moderate	moderate	moderate	moderate
	Success	low	high	moderate	low
	Overall Priority	low	high ✓	moderate	low
Poliomyelitis	Importance	moderate	moderate	moderate	moderate
	Success	moderate	high	high	moderate
	Overall Priority	moderate	high ✓	high ✓	moderate
Tuberculosis	Importance	moderate	high	moderate	moderate
	Success	low	moderate	moderate	low
	Overall Priority	low	high ✓	moderate	low

Record assessments as high, moderate, or low.

COURSE FACILITATOR GUIDELINES

FOR

SURVEILLANCE

Procedure	Relevant Pages in CF Guide	
	Detailed Guidelines	Answer Sheets
1. Distribute the module.	111	
2. Introduce the module.		
3. Explain how work on the module will be done.	111	
4. Explain that no data on Fictitia are needed to complete the exercises in the module.		
5. Participants read through page 5 of the module and complete Exercise A. Provide individual feedback on Exercise A.	111, 137, 139	118-119
6. Participants complete Exercise B. Provide individual feedback on Exercise B.	111-112, 139	120
7. Optional: Have participants design a new surveillance form. Provide individual feedback.	112,139	
8. Participants read pages 10-12 of the module and complete Exercise C. Provide individual feedback on Exercise C.	112-113, 139	121
9. Participants read page 15 of the module and complete Exercise D. Lead group discussion on Exercise D.	113, 141	122
10. Participants read pages 18-21 of the module and complete Exercise E. Provide individual feedback on Exercise E.	113-114, 139	123-125
11. Participants complete Exercises F and G. Provide individual feedback on Exercises F and G.	114, 139	126-127
12. Participants finish reading the module.		
13. Lead group discussion on the module.	114-115, 141	
14. Summarize the module.	115	

DETAILED GUIDELINES FOR

SURVEILLANCE

2. INTRODUCTION OF MODULE

Explain that surveillance, or systematic data collection for action, is essential to measure changes in morbidity and mortality due to the diseases preventable by immunization, and should be an integral part of every immunization programme from its very beginning. This module describes the major steps in a surveillance system, and shows how these steps can be performed in an immunization programme.

3. EXPLANATION OF MODULE

Explain how work on Surveillance will be done:

- Participants will work through all of the exercises in the module individually. They will obtain individual feedback from the Course Facilitator after Exercises A, B, C, E, and G. There will be a group discussion of Exercise D.
- When everyone has finished the module, there will be a group discussion of the module as a whole.

5. EXERCISE A - INDIVIDUAL FEEDBACK

Discuss Exercise A with the participant and give him a copy of the Answer Sheet. Explain that the Weekly Surveillance Form in this exercise is a very complex form. It is a difficult form both to complete and to analyze without making mistakes because:

- so much information is requested, and
- there are so many boxes that it would be easy for the person filling out the form to record information in the wrong place.

Emphasize that collection of more data than can or will be used may discourage those who are submitting the reports and make the jobs of those who analyze the reports more difficult.

Tell the participant that the Monthly Surveillance Form in the next exercise is a simpler form, but that it too can be improved.

6. EXERCISE B - INDIVIDUAL FEEDBACK

Discuss Exercise B with the participant and give him a copy of the Answer Sheet. Stress the following points in your discussion:

- Generally in developing as well as developed countries the major loss of information occurs in the reporting process. Therefore, all obstacles to reporting should be removed.
  - Use a minimum number of forms, and design forms with the utmost simplicity. This means that only data that will actually be used should be requested. It is more important that reporting forms be simple than comprehensive. One should concentrate on how many cases of a disease occurred during a reporting period.
  - Provide incentives for reporting, such as prompt feedback. This can include, for example, an analysis of data or discussion on the progress of the programme.
- Even if reporting is not complete, it does not mean that the totality of data is useless. It <u>is</u> important to try to find some patterns of regularity. Regular reporting is very important, as is estimating the completeness of reporting.
- Because of limitations in routine reporting, especially during the first years of an immunization programme, this data collection method often needs to be supplemented by reporting from sentinel information systems and by special studies to obtain more reliable data.

7. <u>OPTIONAL FORM DESIGN</u>

If participants seem interested and able, and if time permits, you may want them to design an improved, simple surveillance form on their own before they continue reading on page 10 in the module. If they will design a form, have them design it and return to you for feedback.

8. <u>EXERCISE C - INDIVIDUAL FEEDBACK</u>

Discuss Exercise C with the participant and give him a copy of the Answer Sheet. Be sure the participant understands the following points:

- Routine and sentinel information systems are used to collect primarily morbidity and mortality data. Special studies (including, for example, special surveys, vaccine efficacy studies, and outbreak investigations) are useful for collecting data on an immunization programme which cannot be collected through the other data collection methods. The data collected through such studies can be used to derive more accurate estimates of morbidity and mortality and of disease trends.
- Sentinel reporting has a certain bias and a correction factor can be used only when there is a certain consistency of data reporting.

- Special studies will need to be used as a basis for programme planning prior to and during the first years of an immunization programme, since little or no data may be available at that time.
- Special studies are time-consuming and costly. They should therefore be carefully planned to ensure valid results and efficient use of resources.
- Statisticians may be needed to help calculate the precision of survey results.

9. EXERCISE D - GROUP DISCUSSION

In Exercise D, participants are asked which data collection methods should be used to evaluate the achievement of disease reduction targets for measles, poliomyelitis, and tetanus for the 4th and 8th years of an immunization programme.

When all participants have finished the exercise and have indicated they are ready, open the discussion by asking participants which methods they think should be used to evaluate achievement of the disease reduction target for the 4th year. After data collection methods for the 4th year have been discussed, ask participants which methods they think should be used to evaluate achievement of the disease reduction targets for the 8th year. Be sure that participants can provide a rationale for using or not using each method.

Participants may suggest several different data collection methods for these 2 years. Ensure that the methods listed on the Answer Sheet for Exercise D are discussed.

NOTE: When discussing lame surveys for poliomyelitis, ask participants at what year of the programme they would expect coverage rates of poliomyelitis to reflect the whole population at risk.

After discussing Exercise D, give participants a copy of the Answer Sheet.

10. EXERCISE E - INDIVIDUAL FEEDBACK

When you have reviewed a participant's graphs and discussed any errors with him, discuss the differences in the disease patterns which emerge when data from reliable reporting units are considered separately. Important points to mention are:

- Trends cannot be identified accurately unless reliable data are analyzed.

- Data coming from health centres that report regularly may be more reliable. Thus, the dashed line may more accurately represent the trend in measles morbidity than the solid line.
- The dashed line indicates that reported measles morbidity has generally decreased from 1979 to 1981.
- The dashed line also indicates a seasonal trend in measles morbidity which peaks around May.

After discussing the answers to Exercise E with the participant, give him a copy of the Answer Sheet.

11. EXERCISES F AND G - INDIVIDUAL FEEDBACK

Important points to mention in your discussion of these exercises with the participant are:

- Vaccine potency testing, although important, may not always be easily available, and is time-consuming and costly. Therefore, it should not be the first step taken to determine the cause of an outbreak. Testing should only be resorted to if no other causes of an outbreak can be identified.
- The exact age at which children are given immunization for measles greatly affects how many of them are susceptible when they are given the vaccine. Many children will retain maternal antibodies until the age of 9 months, so immunization before 9 months will often not be effective. In addition, with increasing age more children will have been infected with the disease-causing agent and fewer children will be susceptible. Therefore, it is extremely important to focus immunization efforts on the populations at risk.
- The vaccine efficacy rate greatly affects the number of people expected to become immune.

13. GROUP DISCUSSION OF MODULE

When all participants have finished reading the module and have indicated they are ready:

- Ask participants how data on morbidity and mortality due to the diseases preventable by immunization are currently collected and analyzed in their countries.
- Ask participants how data which are collected in their countries are used.
- Ask participants how they plan to collect and analyze data on the diseases preventable by immunization in the future.

If any participant feels that any of the steps presented in the module would not be applicable in his country, discuss with him how each method could be applied or adapted.

14. SUMMARY OF MODULE

Review the following points and any additional points which you may have listed in the box on the next page:

- Planning for a national disease surveillance system should begin early in a programme.
- There are 3 basic ways of collecting data. These are the routine information system, sentinel information system, and special studies. Careful consideration should be given to the advantages and disadvantages of using each of these for data collection in one's own country.
- Data must be analyzed, that is, compiled and interpreted, before achievements of disease reduction targets can be evaluated. The main use of the data should be at the local level.
- Appropriate action, including feedback to personnel at all levels of the health system, should always follow the evaluation. Evaluation efforts will be wasted unless the results are used to identify problems and improve the programme.

Give the participants any necessary instructions about what to do upon completion of the module (for example, take a break before work begins on the mid-level course materials).

ADDITIONAL POINTS TO BE CONVEYED TO PARTICIPANTS ABOUT SURVEILLANCE ARE:

SURVEILLANCE

Answer Sheets

a. Does the form request data which cannot be obtained accurately?

- Since only BCG leaves scars, it may not always be possible to determine immunization status unless patients have immunization cards or accurate records are kept.
- Age data often cannot accurately be obtained.

b. Are there errors in the form design, such as overlapping categories?

- Data from hospitals should be kept separate from data from health centres, so that duplicate case reporting due to referrals from health centres to hospitals can later be accounted for. Therefore, instead of combining "H.C./Hospital" on the same line, it would be more helpful to request the name and type of facility as follows:

  NAME OF FACILITY: _____ HOSPITAL ☐ HEALTH CENTRE ☐

  Or perhaps the data from health centres and hospitals should be collected on two separate forms.
- The overlapping age categories on the forms are confusing. For example, if a diphtheria case were 6 months old, a data collector would not know whether to count it in the 0-6 months category or in the 6-12 months category.
- There may be overlap in the categories M1 (mortality) and M2 (morbidity). It is not clear whether the number of M2's (cases) should include the number of M1's (deaths). In other words, if a case dies, should the data collector count it as both a case and a death, or only as a death?

c. Are more data requested than are likely to be useful? In other words, are there items which are unlikely to be used in later analysis?

- A weekly report is probably not necessary; a monthly report is usually adequate.
- Identification of sex of cases and deaths is probably not necessary, as these data are not likely to be used in later analysis.
- There are more age categories on the form than are necessary. A simpler form might combine the last three age categories into one category: "6 years +."
- It is not necessary to provide a complete age breakdown for neonatal tetanus since the disease only occurs in the first month of life.

- Typhoid is not needed unless surveillance for this disease is being integrated with data collection for the immunization programme.

d. Are additional data needed on the form?

- There should be a column for poliomyelitis.
- It would be useful to provide space for totals of cases and deaths.
- It might be useful to request the title or position of the reporter as well as his name, especially since the signature may be illegible.
- If age and immunization status will be indicated, spaces for unknown age and unknown immunization status should be provided.

e. Does the form have symbols which are complicated or unclear?

- If immunization status will be indicated, the symbols "+" and "-" should be explained.
- M1 and M2 are easily confused. The data collector may constantly need to refer to the key at the bottom of the form or may record data in the incorrect column.
- To avoid confusion, "H.C." should be written in full as "Health Centre."
- "Week No." could be interpreted to mean the week number of the month or the week number of the year. In either case, it is unnecessarily difficult to determine. It would be better to request the beginning and ending dates of the reporting period, as follows:

Reporting Period: From _____/_____/_____
(day) (month) (year)

To _____/_____/_____
(day) (month) (year)

Or it could be worded: "Week beginning Monday, _____"

a. Does the form request data which cannot be obtained accurately?

- There may be overlap in the categories cases and deaths. It is not clear whether the number of cases should include the number of deaths. In other words, if a case dies, should the data collector count it as both a case and a death, or only as a death? If information on deaths is to be collected, it may be better to include 2 categories under each disease, as follows:

Pertussis	
All cases of disease (including those who died)	Deaths due to disease

b. Are more data requested than are likely to be useful?

- It may be difficult to routinely collect information on deaths from all health facilities all the time. For example, how would a health centre know about deaths?

c. Are additional data needed?

- It would be useful to split the column "tetanus" into 2 columns--"neonatal tetanus" and "other tetanus."
- There should be a column for poliomyelitis.
- The date the report is submitted, and the title or position, name and signature of the reporter should all be requested.

1. What are the advantages and disadvantages of reviewing the births in the 4-month period preceding the survey?

   Advantages

   - It is easier for mothers to recall the information requested for a short, recent time period.
   - For a valid survey it is necessary to survey a large area to get a minimum number of births, so the population is more likely to be representative of the total population.

   Disadvantages

   - For a valid survey, it is necessary to include a large number of houses to get a minimum number of births, and this is time-consuming and costly.
   - Four months is not a long enough period to get past one season, so the results may have a seasonal bias.
   - Including children in the first month of life does not give the children a chance to die (that is, they may still be suffering from the disease or in the incubation period).

2. Would you expect the locations chosen for collecting the information (that is, Mineralia and the rural areas around health centres and dispensaries) to be representative of the entire Mountain Region in terms of neonatal tetanus morbidity and mortality? Why or why not?

   No, because the city of Mineralia and rural areas around health centres and dispensaries are better served than other areas in the region.

3. Could the timing of the survey have influenced the findings? Why?

   Yes, the timing could have influenced the findings because of the seasonality of births and deaths (births occur mostly in the harvest season), and because the survey was conducted just before the planting season when it was known that most families were at home.

4. Compare the results of this survey with the regional estimates of incidence and mortality provided on the tables on pages 12 and 13a in the module titled Regional Priorities. Does this survey indicate that there has been a reduction in incidence and mortality from neonatal tetanus in the Mountain Region? Why or why not?

   No, because the survey is not valid.

1. How should data be collected to evaluate the achievement of the disease reduction target for the 4th year of the programme?

   - The routine reporting system may or may not show a downward trend by year 4 of the programme. The actual disease reduction may be partly or completely compensated by an improvement in the completeness of reporting. Therefore, this data collection method may not always provide sufficient data to estimate changes in morbidity trends by the 4th year.
   - Sentinel reporting should be used to estimate the impact of the programme on disease morbidity. One may be reasonably confident that disease reduction targets have been achieved if
     - the reduction in the number of cases reported from your sentinel sites shows 50% reduction from the number of cases reported prior to the start of your programme, and
     - the immunization coverage in the area outside the sentinel area is similar to the coverage in the areas of the sentinel sites.
   - Investigation of cases seen at health facilities and outbreak investigations in infected villages can be used to document expected levels of vaccine efficacy.
   - Lame surveys among school enterers may be useful for evaluating achievement of the disease reduction target for polio. These surveys may underestimate the reduction, however, because the age cohorts that were immunized have not yet reached school age.
   - Surveys for neonatal tetanus would be useful. They should show a reduction of around 50% from surveys taken at the start of the programme. A statistician may be needed to help you calculate the precision of survey results.

2. How should data be collected to evaluate the achievement of the disease reduction target for the 8th year of the programme?

   - The routine reporting system should be fully developed and show the required disease reduction by the 8th year of the programme. In addition, the data collection methods described above for evaluating achievement of the 4th year targets, that is, the sentinel reporting system and special studies, should also be continued. Special surveys may be difficult, however, because very large populations will need to be surveyed to get reliable results.

Reliable reporting units (that is, reporting units which reported 75% of the time) are indicated by checks in the left margin.

1979

	REPORTING UNITS	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
	Hospital A	42	67	85	...*	...	...	...	194	75	6	8	11	488
✓	Health Centre 1	23	35	38	47	49	26	13	3	5	7	11	12	269
	Health Centre 2	17	23	...	...	8	95	...	...	70	10	...	...	223
	Health Centre 3	7	11	...	...	...	61	...	...	4	8	...	42	133
	Health Centre 4	5	...	14	20	...	...	42	...	0	2	5	...	88
✓	Health Centre 5	12	19	25	37	32	16	9	4	3	4	7	10	178
	Health Centre 6	42	...	...	...	...	...	...	97	...	...	...	...	139
✓	Health Centre 7	8	11	17	...	32	13	18	17	21	5	4	7	153
	Health Centre 8	...	...	...	...	...	...	...	...	...	...	...	234	234
	SUBTOTAL	43	65	80	84	113	55	40	24	29	16	22	29	600
	TOTAL	156	166	179	104	121	211	82	315	178	42	35	316	1,905

1980

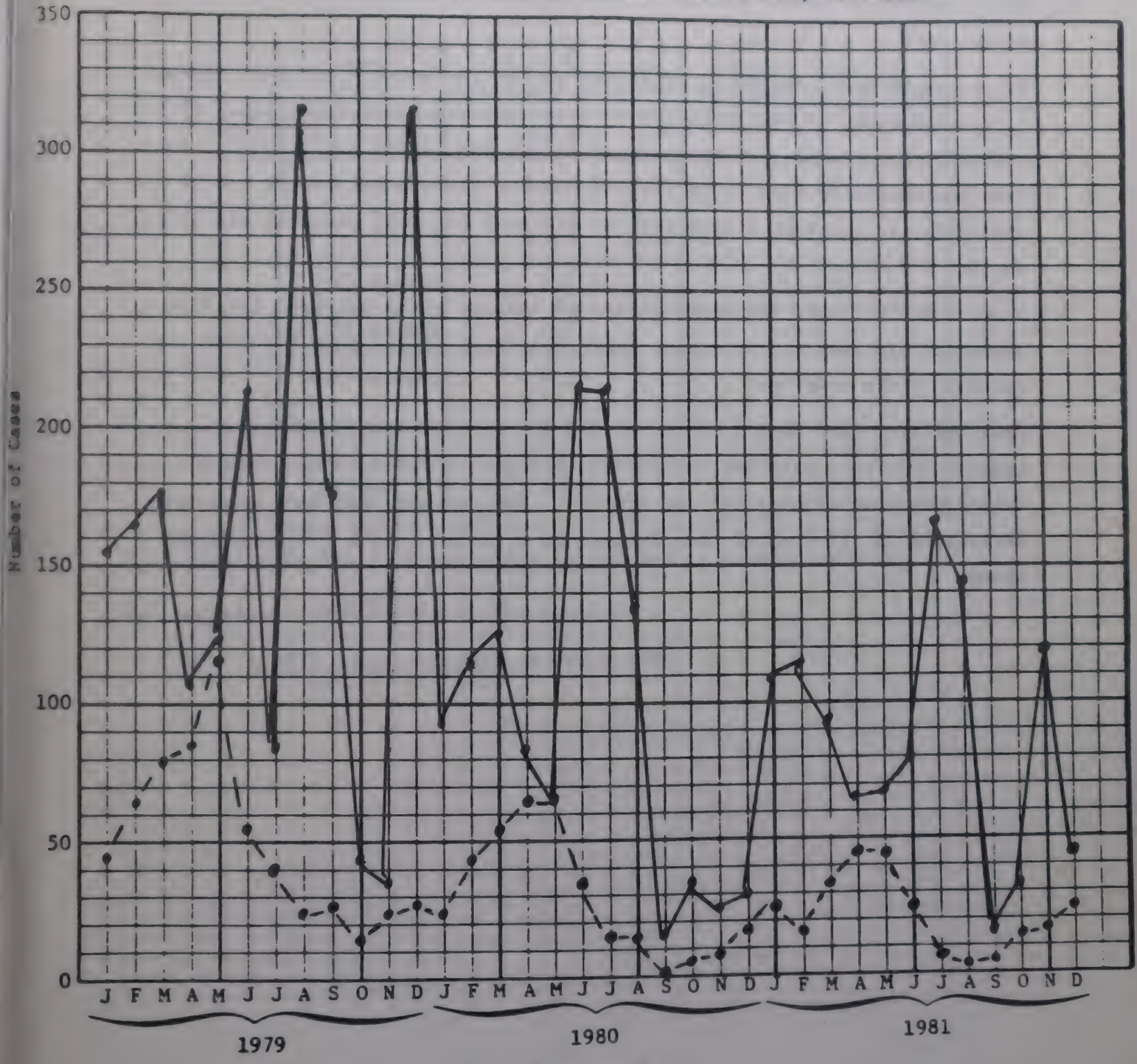
	REPORTING UNITS	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
	Hospital A	27	34	58	...	...	106	12	7	6	...	9	...	259
✓	Health Centre 1	15	18	24	29	32	16	8	4	0	3	5	9	163
	Health Centre 2	...	15	...	19	...	30	7	2	1	4	7	...	85
	Health Centre 3	...	15	17	...	...	...	25	...	6	1	...	5	69
	Health Centre 4	7	11	...	...	...	50	...	9	...	2	2	4	85
✓	Health Centre 5	11	16	16	17	18	5	8	2	0	1	2	5	101
	Health Centre 6	27	...	...	...	...	...	...	103	...	...	...	4	134
✓	Health Centre 7	...	8	11	16	15	10	...	6	0	1	1	3	71
	Health Centre 8	5	...	...	...	...	...	156	...	...	20	...	...	181
	SUBTOTAL	46	42	51	62	65	31	16	12	0	5	8	17	335
	TOTAL	92	117	126	81	65	217	216	133	13	32	26	30	1,148

*"..." means no report was received for the reporting period.

1981

	REPORTING UNITS	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
	Hospital A	17	24	31	...	...	55	8	6	5	9	15	...	170
✓	Health Centre 1	11	10	19	21	25	12	5	1	0	4	6	8	122
	Health Centre 2	15	10	17	...	...	...	50	2	...	5	9	10	118
	Health Centre 3	9	11	15	...	25	...	5	0	...	3	5	7	80
	Health Centre 4	...	15	...	20	...	...	...	15	1	3	5	6	65
✓	Health Centre 5	7	8	13	15	19	7	3	0	2	5	8	9	96
	Health Centre 6	...	38	...	...	...	...	98	...	...	...	68	...	204
✓	Health Centre 7	5	...	...	11	...	6	...	...	1	3	4	7	37
	Health Centre 8	46	...	...	...	...	...	...	117	...	...	...	...	163
	SUBTOTAL	23	18	32	47	44	25	8	1	3	12	18	24	255
	TOTAL	110	116	95	67	69	80	169	141	9	32	120	47	1,055

NUMBER OF CASES OF MEASLES REPORTED PER MONTH, 1979-1981



The number of measles cases reported monthly by all listed reporting units in the Coastal Region is represented by the solid line on the graph; the number of measles cases reported monthly by reliable reporting units is represented by the dashed line. The dashed line presumably represents the trend in measles morbidity more accurately than the solid line. The dashed line indicates that reported measles morbidity has generally decreased from 1979 to 1981; it also indicates a seasonal trend in measles morbidity, which peaks around May.

1. Would you try to send a sample of the vaccine for potency testing? Why or why not?

   No, it would be premature to send the vaccine for potency testing without first conducting an investigation to determine other possible causes of the outbreak (for example, if the correct target population was given vaccine). This is especially true since vaccine potency testing may not be easily available, it may take a long time to get back the test results, and it is costly.

2. Comment on the lower and upper limits of the age group selected for this campaign. In what way may these upper and lower limits have affected the success of the campaign?

   Most children less than 9 months of age are not susceptible to measles because they have maternal antibodies, and most children older than 36 months may have already had the disease. The campaign may have been more successful if efforts had been focused on children in the 9-35 month age group.

1. Age-specific and overall attack rates in immunized and unimmunized children:

Age Group	Attack Rates in Immunized Children	Attack Rates in Unimmunized Children
0-5 months	14.3 %	0 %
6-8 months	11.1 %	17.6%
9-11 months	10 %	80 %
12-23 months	2.2 %	73.3 %
24-35 months	2 %	40 %
36-47 months	0 %	0 %
48-59 months	0 %	0 %
OVERALL	2.2 %	37.1 %

2. Children in the 6-35 month age groups are at particular risk.

3. Approximately efficacy of the vaccine:

$$\frac{37.1 - 2.2}{39.1} = \frac{34.9}{37.1} \times 100 = 94\%$$

COURSE FACILITATOR GUIDELINES
FOR
MID-LEVEL MODULES

Procedure	Relevant Pages in CF Guide	
	Detailed Guidelines	Answer Sheets
1. Explain why training materials for mid-level managers are included in this course for senior-level managers.	131	
2. Explain which mid-level course materials will be used at this course.	131-132	
3. Explain how the mid-level modules differ from the senior-level modules.	132	
4. Explain how to read the flowcharts in the mid-level modules.	132-133	
5. Participants work on mid-level modules and/or parts of modules. *		
6. Provide general instructions on use of the mid-level course materials in participants own countries.	133-134	
7. Distribute mid-level modules and answer sheets to exercises in modules that participants did not complete during the course.		
SUPPLEMENT TO SUPERVISE PERFORMANCE FOR SENIOR-LEVEL MANAGERS		
8. Distribute the handout after participants have completed work on the module Supervise Performance.		
9. Introduce the handout.	134	
10. Explain how work on the handout will be done.	134	
11. Participants read page 1 of the handout and complete Exercise A. Provide individual feedback on Exercise A.	134, 137, 139	
12. Participants read page 5 and complete Exercise B. Provide individual feedback on Exercise B.	135, 139	
13. Summarize the handout.	135	

* NOTE: For detailed guidelines on how to proceed with each mid-level module, refer to the Course Manager Guidelines for that module.

DETAILED GUIDELINES FOR
MID-LEVEL MODULES

1. EXPLANATION OF WHY TRAINING MATERIALS FOR MID-LEVEL MANAGERS ARE INCLUDED IN THIS COURSE FOR SENIOR-LEVEL MANAGERS

Explain to participants that many, but not all, of the planning and management skills needed by senior-level managers of expanded programmes on immunization have been taught in the first part of this course. Additional information and skills that are essential for senior-level managers to know and/or perform are included in the course materials which were originally developed for mid-level EPI managers (that is, managers at the regional, district, and/or health centre levels).

Often the tasks taught in the mid-level course materials are actually performed by senior-level managers. In addition, senior-level managers may find it useful to know this information in order to supervise and train their mid-level personnel. For these reasons, the mid-level training materials are included as part of this course.

Tell participants that as they work through the mid-level modules they will notice that much of the content and practice exercises is directed specifically toward regional and local personnel. Many of the same procedures apply at the central level, especially those described for the regional level. As they work through all or part of a mid-level module, they should think of how the procedures taught are relevant to senior-level managers.

2. EXPLANATION OF MID-LEVEL TRAINING MATERIALS

Explain that there are 8 mid-level modules. The major tasks described in the mid-level modules are:

Allocate Resources
Manage the Cold Chain System
Conduct Vaccination Sessions
Evaluate Vaccination Coverage
Supervise Performance
Provide Training
Conduct Disease Surveillance
Ensure Public Participation

In addition to these 8 modules, there is a handout titled "Supplement to Supervise Performance for Senior-Level Managers." This handout is designed for use by senior-level EPI managers and accompanies the mid-level module titled Supervise Performance.

Explain that at this course participants will work through only those mid-level modules or parts of modules which the Course Director has determined are most appropriate for their needs. These are . . .* Remind participants that they can keep all of the mid-level modules, even those they do not work through at the course, to complete at a later time.

3. DIFFERENCES BETWEEN MID-LEVEL AND SENIOR-LEVEL MODULES

Explain to participants that as they work through the mid-level modules, they will notice a few differences between these modules and the senior-level modules which they have just completed. Some of these differences are:

- Both sets of modules contain written exercises to allow them to practice what they learn. The difference is that they will not need to use data from the hypothetical country of Fictitia to do the exercises in the mid-level modules. All of the data needed to do the exercises in these modules are included in the modules themselves.
- Each mid-level module contains a glossary of terms used in the module at the back of the module.
- Some words are used differently in the mid-level modules than in the senior-level modules. For example, programme "targets" as used in the senior-level modules are called "objectives" in the mid-level modules. "Course Facilitators" are called "Course Managers" and "immunization workers" are referred to as "vaccinators" in the mid-level modules. When participants encounter an unfamiliar term in the mid-level modules and are not able to find it in the glossary of terms, they should feel free to consult the Course Facilitator.

4. EXPLANATION OF FLOWCHARTS

Draw the flowchart example on the following page on a blackboard or flipchart.

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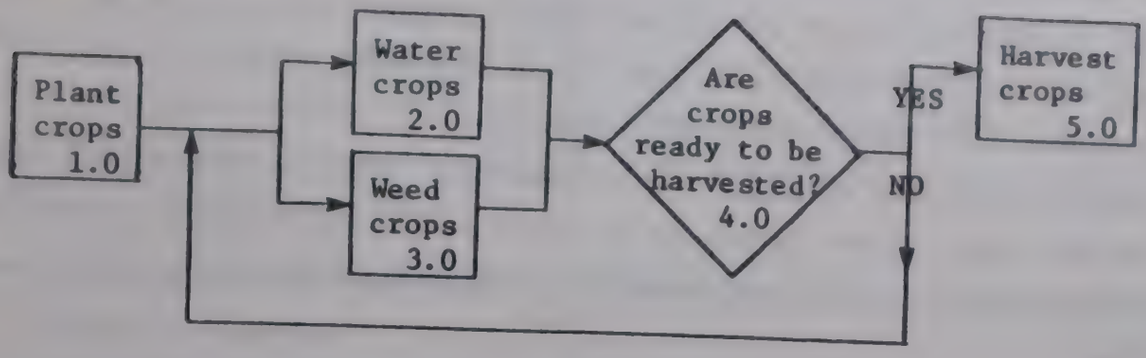
*Note: You will need to consult with the Course Director to determine which mid-level materials will be completed by the participants at your course.

FLOWCHART EXAMPLE: GROW CROPS



Explain to participants that there is a flowchart in the introduction to each mid-level module which shows the tasks involved in the skill taught in the module and the order in which these tasks should be performed. At first participants may find it difficult to understand these flowcharts. To help them, tell them you will provide some general guidelines for reading flowcharts.

Point to the example of the flowchart you drew on the blackboard or flipchart as you discuss these guidelines:

- Each block (□) on a flowchart represents a basic task. For example, blocks 1.0, 2.0, 3.0, and 5.0 in the flowchart example represent the basic tasks involved in growing crops.
- Each diamond (◇) on a flowchart shows that a decision must be made. If the decision is "yes," follow the "yes" arrow; if the decision is "no," follow the "no" arrow. For example, in the flowchart example, if the answer to 4.0, "Are crops ready to be harvested?" is "yes," you would go to block 5.0, "Harvest crops." If the answer to 4.0 is "no," you would go back and perform blocks 2.0 and 3.0 again.
- To read a flowchart, read the blocks in order from left to right, unless the arrows indicate otherwise. Sometimes two blocks in a flowchart may be placed on top of one another, as are blocks 2.0 and 3.0 in the flowchart example. This means that tasks 2.0 and 3.0 may be done at the same time, or that the order in which the tasks are done does not matter.

6. USE OF THE MID-LEVEL COURSE MATERIALS IN PARTICIPANTS' OWN COUNTRIES

After the participants have finished working through the mid-level materials they were asked to complete at the course, reinforce the following points:

- As senior-level managers, participants may find it useful to know the information in all of the mid-level modules, not only those modules or parts of modules used at the course, in order to supervise and train their mid-level personnel.
- When participants return to their countries, they can and should use the mid-level course materials to train others on an intermittent (as needed) basis; they should not try to use all of the materials at one time.

SUPPLEMENT TO SUPERVISE PERFORMANCE FOR SENIOR-LEVEL MANAGERS*

9. INTRODUCTION OF HANDOUT

Briefly explain that this handout describes the 2 major supervising tasks of national EPI programme managers: monitor performance on an ongoing basis and periodically review health centre operations.

10. EXPLANATION OF HANDOUT

Explain how work on the Supplement to Supervise Performance will be done:

- Participants will work through the handout individually. They will obtain individual feedback from the Course Facilitator after completing each exercise.

11. EXERCISE A - INDIVIDUAL FEEDBACK

As you review the participant's Answer Sheet with him, keep in mind that there are no single right answers for the exercise. Ensure that the participant can justify any modifications he made on the list of key problem indicators. If he did not modify the list, it is important that he explain his reasons for not doing so.

When you have finished discussing Exercise A, tell the participant that there is no answer sheet for the exercise.

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*Note: This handout should only be assigned to participants upon completion of their work on the mid-level module titled Supervise Performance.

12. EXERCISE B - INDIVIDUAL FEEDBACK

When the participant reports to you after completing Exercise B, reinforce the fact that there are no single right answers to the exercise, nor is there an answer sheet for the exercise. Review with the participant the reasons for developing a form or checklist like the one in this exercise. The reasons are:

- to assist regional managers in conducting periodic reviews of health centre operations,
- to ensure that the same data will be collected from each health centre, and
- to ensure that only data which are useful to the country will be collected.

After you have discussed the reasons for developing a form or checklist for use in conducting periodic reviews of health centre operations, review the participant's checklist with him. Ensure that he can justify any modifications he has made. If the participant did not modify the checklist in any way (that is, he did not delete, revise, or add anything to the checklist), be sure he can explain his decisions for not doing so.

13. SUMMARY OF SUPPLEMENT TO SUPERVISE PERFORMANCE

Review the following points and any additional points you may have listed in the box on the next page with the participant.

- Supervision by national EPI programme managers at the central level is as critical to a programme's success as supervision by regional and local managers.
- A national manager's major supervising tasks are to monitor performance on an ongoing basis and to periodically review health centre operations.

ADDITIONAL POINTS TO BE CONVEYED TO PARTICIPANTS ABOUT THE SUPPLEMENT TO SUPERVISE PERFORMANCE FOR SENIOR-LEVEL MANAGERS ARE:

ALL MODULES

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other Course Facilitator or the

ODULES

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is correct.

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d a basic concept being taught.

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lf, you might try relating it to
riate, you might ask a participant
ise again, so that he can be sure
a copy of the answer sheet, if one

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ALL MODULES

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to work together as a group.